DOCUMENT RESUME

ED 022 591 RC 002 597

OUTDOOR RECREATION RESEARCH, A REFERENCE CATALOG FOR 1966.

Department of the Interior, Washington, D.C. Bureau of Outdoor Recreation.; Smithsonian Institution, Washington, D.C. Science Information Exchange.

Pub Date 67

Note-87p.

EDRS Price MF-$0.50 HC-$3.56

Descriptors-ABSTRACTS, *CATALOGS, INDEXES (LOCATERS), *INFORMATION DISSEMINATION, *OUTDOOR EDUCATION, *RECREATION, REFERENCE MATERIALS, *RESEARCH

Ongoing research in outdoor recreation during 1966 is identified through brief abstracts of research projects, lists of organizations and principal investigators conducting the research, and a subject index. The four major research areas constituting chapter headings are resources, user studies, economics, and research methods. Related document RC 002 600 provides similar catalog of information for 1967. Other related documents are RC 002 598 and RC 002 599. (VM)

Outdoor Recreation Research

A Reference Catalog • 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

RECEIVED
AUG 12 1968
NMSU
E.R.I.C.

ED022591
RC002597

T OF THE INTERIOR Bureau of Outdoor Recreation

CONTENTS

Foreword i

Sample Notice of Research Project iii

Guidelines for completing Notice of Research Project iv

I. Descriptions of Individual Efforts

Chapters Page

1. Resources 1

2. User Studies 27

3. Economics 43

4. Research Methods 55

II. Performing Organizations 61

III. Principal Investigators 63

IV. Subject Index 65

FOREWORD

This catalog was prepared by the Science Information Exchange of the Smithsonian Institution as a service developed by the Bureau of Outdoor Recreation, Department of the Interior, in cooperation with other Federal agencies, State organizations, and universities. It is based on project outlines submitted by outdoor recreation research workers throughout America.

The purpose of this compilation is to present in one reference volume a listing and brief description of current and recently completed outdoor recreation research projects to allow research personnel to maintain current awareness of contemporary activities of other investigators. By this means, it should be possible to reduce duplication of effort and facilitate a free exchange of opinions and research findings among scientists and organizations.

To qualify for inclusion, project outlines had to be directly related to outdoor recreation. Certain fish and wildlife research projects were included because of the involvement of users. Thus, hunter preference research, hunter and fisherman success research, and research on the recreation utilization of fish and wildlife resources were included. More general biological research was not included. Judgment entered into the decision as to whether certain notices should be included. Suggestions are invited as to the kinds of coverage and types of research projects to include in future catalogs.

In addition to utilizing the outlines contributed specifically for this compilation prior to July 1966, the Science Information Exchange searched its files for previously submitted outlines in the outdoor recreation research category, and included appropriate titles. Despite the publicity given the invitation to submit project outlines, it is probable that eligible projects may not have been included.

This first collection of outdoor recreation research summaries should serve to stimulate greater future cooperation. No date has been set for the next compilation, but potential contributors are urged to keep their submittals current with the Science Information Exchange. A blank Notice of Research Project Form with instructions is enclosed. Completed forms should be forwarded to the Science Information Exchange for registration. Additional forms may be obtained by a written request, or simply reproducing the one enclosed.

Edward C. Crafts

Edward C. Crafts
Director

October 15, 1966

SI-SIE-78A; REV. 6-64

NOT FOR PUBLICATION OR PUBLICATION REFERENCE

NOTICE OF RESEARCH PROJECT
SCIENCE INFORMATION EXCHANGE
SMITHSONIAN INSTITUTION

SIE NO.	
AGENCY NO.	

SUPPORTING AGENCY:

TITLE OF PROJECT:

Give names, departments, and official titles of PRINCIPAL INVESTIGATORS and ALL OTHER PROFESSIONAL PERSONNEL engaged on the project.

NAME AND ADDRESS OF INSTITUTION:

SUMMARY OF PROPOSED WORK – (200 words or less.) – In the Science Information Exchange summaries of work in progress are exchanged with government and private agencies supporting research, and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

SIGNATURE OF PRINCIPAL INVESTIGATOR ____________________

PROFESSIONAL SCHOOL (medical, graduate, etc.) ____________________

SI-SIE-78
6-64

GUIDELINES FOR COMPLETING FORM ARE GIVEN IN THE DOTTED BLOCKS

NOTICE OF RESEARCH PROJECT
SCIENCE INFORMATION EXCHANGE
SMITHSONIAN INSTITUTION

SIE NO.
AGENCY NO.

UNIQUE IDENTIFICATION NUMBER (TASK # OR SYMBOL)

NOT FOR PUBLICATION OR PUBLICATION REFERENCE

SUPPORTING AGENCY:

NAME OF THE SUPPORTING AGENCY
NAME OF THE SUPPORTING BUREAU OR OFFICE, IF KNOWN
IF MULTIPLY FUNDED, NAME OF CO-SPONSOR(S)

TITLE OF PROJECT:

TITLE SHOULD BE AS SPECIFIC AS POSSIBLE

Give names, departments, and official titles of PRINCIPAL INVESTIGATORS and ALL OTHER PROFESSIONAL PERSONNEL engaged on the project.

1. INDICATE WHO IS THE PRINCIPAL INVESTIGATOR IF MORE THAN ONE NAME APPEARS.
2. IF INVESTIGATORS ARE ASSOCIATED WITH UNIVERSITIES, INCLUDE THEIR SCHOOL AND DEPARTMENT AFFILIATIONS. FOR OTHER TYPES OF ORGANIZATIONS, INCLUDE CORRESPONDING DIVISIONAL AND UNIT DESIGNATIONS.

NAME AND ADDRESS OF INSTITUTION:

TO WHICH THE TASK WAS AWARDED

SUMMARY OF PROPOSED WORK – (200 words or less.) – In the Science Information Exchange summaries of work in progress are exchanged with government and private agencies supporting research, and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

THE SUMMARY IS USED AS A MEANS OF COMMUNICATION AND IS PREFERABLY WRITTEN BY A SCIENTIST OR ENGINEER WHO IS FAMILIAR AND CLOSELY ASSOCIATED WITH THE RESEARCH TASK. THIS SUMMARY SHOULD NOT CONTAIN INFORMATION THAT CANNOT BE GIVEN OTHER RESEARCH SCIENTISTS AND ENGINEERS. IT PROVIDES INFORMATION ON RESEARCH WORK NOT YET PUBLISHED AND NOT OTHERWISE AVAILABLE. THE SUMMARY SHOULD DESCRIBE THE PROBLEM CLEARLY, SHOW RELATIONSHIPS TO OTHER ASPECTS OR TO BROADER AREAS OF RESEARCH, AND SHOULD IDENTIFY PLAN OF PROCEDURE, TECHNIQUES, INSTRUMENTS AND SPECIAL MATERIALS, ORGANISMS OR OTHER BIOLOGICAL PREPARATIONS USED, SPECIAL ENVIRONMENTS, ETC. EACH RECORD SHOULD SUMMARIZE A SINGLE RESEARCH TASK OR A SMALL DISCRETE UNIT OF RESEARCH SO THAT IT MAY BE ANALYZED AND INDEXED IN TECHNICAL DEPTH AND DETAIL FOR EFFECTIVE USE.

IF WORK IS BEING PERFORMED ELSEWHERE THAN AT LOCATION OF RECIPIENT'S INSTITUTE, INDICATE WHERE

THE LAST SENTENCE OF THE PROJECT DESCRIPTION SHOULD STATE THE FISCAL YEAR IN WHICH THE PROJECT WAS STARTED AND THE FISCAL YEAR IN WHICH IT IS ANTICIPATED THAT IT WILL BE COMPLETED.

CURRENCY OF REPORTING –
THIS FORM SHOULD BE:
(1) SUBMITTED AT THE START OF EACH NEW PROJECT
(2) REVIEWED AND REVISED ANNUALLY THEREAFTER, OR
(3) WHENEVER DURING THE COURSE OF A FISCAL YEAR A PROJECT IS SUBSTANTIALLY CHANGED.

PLEASE DO NOT REGISTER A RESEARCH PROJECT SUPPORTED BY A FEDERAL AGENCY, FOUNDATION, OR FUND RAISING AGENCY, IF YOU HAVE ALREADY REGISTERED SUCH A PROGRAM AT SIE DURING THE CURRENT FISCAL YEAR.

SIGNATURE OF PRINCIPAL INVESTIGATOR ____________________

PROFESSIONAL SCHOOL (medical, graduate, etc.) ____________________

(A) DATES OF CURRENT PROJECT AUTHORIZATION (FISCAL YEAR, OR MONTH/YEAR TO MONTH/YEAR)
(B) ANNUAL LEVEL OF EFFORT IN DOLLARS, IF SPECIFIED
(C) IF MULTIPLY FUNDED, THE ANNUAL DOLLAR SUPPORT BY EACH SPONSOR

NOTE: FUNDING INFORMATION IS NOT RELEASED EXCEPT WITH APPROVAL OF SUPPORTING AGENCY, OR TO AUTHORIZED REVIEWING BODIES.

I. DESCRIPTIONS OF INDIVIDUAL EFFORTS

1. RESOURCES

1.1

University of Alaska, College, Alaska
FACTORS AFFECTING THE DEVELOPMENT OF THE WATER RECREATION POTENTIAL OF THE LAKES AND RIVERS OF THE BRISTOL BAY REGION OF ALASKA
Frank W. Kearns
Supported by U. S. Department of the Interior

The rivers and large lake system draining into Bristol Bay in Southwestern Alaska constitute one of the most valuable salmon fisheries in the state. In addition the waters offer excellent sport fishing.

This project would provide for a preliminary analysis of the factors which affect directly the fulfilling of the recreation potential of this area. Data on such items as (1) present and projected population of the area; (2) user statistics; (3) conflicts between recreational and commercial fishing in the area; (4) transportation needs and access routes; and (5) State and Federal land use policies will be compiled and analyzed.

1.2

Arizona Game and Fish Department
Phoenix, Arizona
COOPERATIVE WATER RESOURCES INVENTORY OF ARIZONA
Robert D. Curtis
Supported by U. S. Department of the Interior

The purpose of this investigation is to determine the present water resources in Arizona, to determine the present and future water requirements of hunting and fishing use in Arizona, to determine the economic implications of hunting and fishing use, and to locate potential water impoundment sites to satisfy future hunting and fishing requirements.

An inventory of available water resources in Arizona will be continued in cooperation with the Bureau of Reclamation and the Branch of River Basin Studies of the Fish and Wildlife Service. Estimates of hunting and fishing water requirements will be determined by reference to creel census data, hunting pressure estimates, and predicted populations to be obtained from any available source. Economic values of hunting and fishing use will be determined by reference to Senate Document No. 97, Supplement No. 1, entitled, "Evaluation Standards for Primary Outdoor Recreation Benefits", existing publications, and other sources as they become available. During this segment, a lake site analyst will investigate as many lake sites as possible to coordinate and correlate preliminary biological and engineering data. Biological and engineering studies of proposed impoundment sites will be accomplished by qualified personnel as time permits.

1.3

Arizona Game & Fish Department
Phoenix, Arizona
WATER STORAGE PROJECT - CENTRAL ARIZONA PROJECT
Robert D. Curtis
Supported by U. S. Department of Interior

To investigate proposed diversionary routes, associated dams, reservoirs, and aqueducts which have been proposed to transfer Colorado River water to Central Arizona in all respects relating to fish, wildlife, and recreational resources. Recommendations will be designed and formulated to promote conditions to improve these resources.

Aerial and ground reconnaissance studies and photographs of type localities along the proposed route will be taken for ready reference. Basic data, including creel census and road check interviews for fishing, hunting, and related recreational use, will be gathered and compiled for presentation in a proposed management plan to be written in the future. Fishermen and related recreational users will be contacted by River Basin aides hired specifically to obtain information through periodic road checks and spot checks in the field in order to obtain data on sportsmen pressure in several predetermined areas in the state.

1.4

Berkeley, California
GUIDES FOR MULTIPLE USE OF FOREST LAND IN THE PACIFIC SOUTHWEST
Lynn Rader
Supported by U. S. Department of Agriculture

Object: To identify competitive, neutral or complementary forest land use relationships; investigate methods to measure conflict between uses; and present analytical techniques to evaluate alternative opportunities to reduce conflict.

Plan of work: (1) A completed pilot study on measuring possible conflict between recreation and timber uses of forest land in three California national forests, will be extended to more national forests. (2) A case study is being made of the effect of recreation on timber production. It presents a detailed measure of recreation and timber conflict at a particular location using a method applicable to other areas. The change in a timber production schedule resulting from addition of recreation to a purely timber production goal will be estimated. The amount calculated is one measure of the cost of providing recreation on forest land. (3) Study plan has been completed to establish the input-output relationships between jointly produced products. Initial emphasis will be on predicting changes in forest growing stock. Later work will include watershed, range, and wildlife relationships in multiple-use. (4) The relative importance of scenic or landscape zones will be estimated by measuring the amount of forest land affected. Definition of terms and development of methodology to incorporate such factors as visibility, topography, and travel methods will be studied.

1.5

University of California, Agricultural Experiment Station, Davis, California
HORTICULTURAL METHODS FOR PLANTING, MANAGING AND ENHANCING VEGETATION ON FOREST RECREATION SITES
Andrew T. Leiser
Supported by State of California

The objectives include research on the improvement of old declining sites, development of new campsites in forested areas and the development of new sites in areas with relatively little desirable existing vegetation.

Work proposed:
1. Review the problem
2. Assemble plant lists and guides
3. Review the literature and consult with others working on the problem
4. Select initial research sites
5. Begin pilot research
6. Outline a continuing research program

1.6

California Department of Fish and Game, Sacramento, Calif.
UPLAND GAME INVESTIGATIONS; LICENSED PHEASANT CLUB MANAGEMENT PROGRAM
Harold T. Harper
Supported by U. S. Department of Agriculture

Objectives: To determine the role of licensed pheasant clubs in the overall pheasant management program to formulate future management plans for these clubs.

Procedure: A review of the licensed pheasant club program will be made to determine the growth of the program, law and regulation changes, number of hunters accommodated, release of game farm birds, and the take of wild birds on these clubs. The overall effect of licensed pheasant clubs on the resource will be determined by the results of mortality and population turnover studies, game farm pheasant returns vs. wild bird returns. Such results will be obtained from band returns and from field studies of the habitat conditions on these clubs as compared to other club and non-club areas. The need for law and regulation changes will be determined for future management practices.

1.7

Colorado Game, Fish and Parks Department
Denver, Colorado
SURVEY OF POTENTIAL PUBLIC WATERFOWL SHOOTING AREAS IN COLORADO
Richard M. Hopper
Supported by U. S. Department of the Interior

Objectives: Objectives of Segment 11 are (1) to analyze and summarize all data collected during past segments of this job, and (2) to formulate the resulting information into a final job completion report.

Procedures: Analysis and summarization of data will be aimed at producing the following information for which this job was designed: (1) amount of wetlands in the major irrigated portions of Colorado, (2) number and amount of wetland areas leased for hunting, fishing, and other recreational purposes, (3) a method to rate wetland areas in terms of value for acquisition as public hunting area, and (4) a priority list of public hunting areas for presentation to the Commission. This information will then be compiled in the form of a final report which will cover all past segments of this job.

1.8

Colorado Department of Game, Fish and Parks Research Center
Fort Collins, Colorado
WATER RESOURCES DEVELOPMENT STUDIES—COSTILLA PROJECT, EASTDALE RESERVOIR
Donald M. Hoffman
Supported by U. S. Department of the Interior

An inventory type study to evaluate the possible effects of the Costilla Project, Eastdale Reservoir to be constructed by the Bureau of Reclamation in the San Luis Valley of Southern Colorado in inundating pheasant range. Studies will be conducted to investigate (1) the possible effects of the reservoir on loss of range, alteration in proportions of available range types, restriction of game bird movements, loss of birds through drowning or traffic hazards, hunter access and hunting, and possible conflicts of interests between hunters and recreationists, (2) possibility for State control of lands within the project, and (3) whether means of mitigating losses to and/ or enhancing upland game bird values exist and suggest what these might be.

Bureau of Reclamation project plans will be studied, existing information on pheasant populations and range will be compiled and evaluated, and on-the-site investigations will be made.

1.9

Colorado Department of Game, Fish and Parks Research Center
Fort Collins, Colorado
WATER RESOURCES DEVELOPMENT STUDIES--GRAND MESA PROJECT
Gary T. Myers
Supported by U. S. Department of the Interior

An inventory type study to evaluate the possible effects of the Grand Mesa Project to be constructed by the Bureau of Reclamation in western Colorado in inundating blue grouse, wild turkey, pheasant, and Gambel's quail ranges. Studies will be conducted to investigate (1) the possible effects of the project on loss of ranges, alteration in proportions of available range types, restriction of game bird movements, loss of birds through drowning or traffic hazards, hunter access and hunting, and possible conflicts of interests between hunters and recreationists, (2) possibility for State control of lands within the project, and (3) whether means of mitigating losses to and/or enhancing upland game bird values exist and suggest what these might be.

Bureau of Reclamation project plans will be studied, existing information on upland game bird populations and ranges will be compiled and evaluated, and on-the-site investigations will be made.

1.10

Colorado Department of Game, Fish and Parks Research Center
Fort Collins, Colorado
WATER RESOURCES DEVELOPMENT STUDIES—BATTLEMENT PROJECT
Glenn E. Rogers
Supported by U. S. Department of the Interior

An inventory type study to evaluate the possible effects of the Battlement Project to be constructed by the Bureau of Reclamation in western Colorado in inundating sage grouse and wild turkey ranges. Studies will be conducted to investigate (1) the possible effects of the project on loss of range, alteration in proportions of available range types, restriction of game bird movements, loss of birds through drowning or traffic hazards, hunter access and hunting, and possible conflicts of interests between hunters and recreationists, (2) possibility for State control of lands within the project, and (3) whether means of mitigating losses to and/or enhancing upland game bird values exist and suggest what these might be.

Bureau of Reclamation project plans will be studied, existing information on upland game bird populations and ranges will be compiled and evaluated, and on-the-site investigations will be made.

1.11

Colorado Game, Fish, and Parks Department, Denver, Colorado
QUALITY FISHING ON THE POUDRE RIVER
W. D. Klein
Supported by Colorado Department of Game, Fish and Parks

This study is designed to measure the influence of special regulations on the trout, the fishing and the fishermen in 4.7 miles of the Poudre River some 45 miles upstream from the city of Fort Collins in Larimer County.

In addition to the 4.7 mile study area where special regulations are in force, an upper and lower control area are under surveillance to permit comparisons with the stretch of river under special regulation. Routine stocking and regulations are continuing in the control areas while bait fishing is prohibited in the study area and stocking has been eliminated. Also, there is a 12" minimum size limit on rainbow trout in the study area.

Fishermen are counted and creels checked on two days each week (May - September) in the study and control areas following a routine procedure. Fishermen are questioned as to the method of fishing, hours fished and number of trout caught but not kept. Each trout checked is measured and some are weighed. A population estimate is made in sections of the study and control areas in the spring and fall using an electrical shocking device. Length and weight data on the trout is obtained at the time of the population estimates.

It is anticipated that various other special regulations will be tested in the future.

1.12

Colorado Game, Fish, and Parks Department;
Game Research Center, Fort Collins, Colorado
WATER RESOURCES DEVELOPMENT STUDIES - CURECANTI RESERVOIR PROJECT
Glenn E. Rogers
Supported by U.S. Department of the Interior

A water resources development project to study the possible effects of the Curecanti Reservoir Project (Bureau of Reclamation) along the Gunnison River in western Colorado in inundating blue and sage grouse range. Information will be used in better management of these lands with respect to upland game bird populations and hunters. Studies are being conducted to determine: (1) the amount of range lost or alteration in existing ranges, (2) possible effects of loss of birds through drowning, traffic hazards, etc., (3) effects of the reservoir on access by roads or boats, (4) conflict of interest between hunters and recreationists, (5) management practices needed within project lands, and (6) means of mitigating losses to and/or enhancing upland game bird values. On-the-site investigations include range and game surveys as required. Existing information is being assembled and evaluated. This information in conjunction with that from the Bureau of Reclamation will serve as the basis for potential mitigation and/or enhancement of upland bird resources resulting from this project.

1.13

Ft. Collins, Colorado
INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE
L. D. Love
Supported by U. S. Department of Agriculture

Object: To assess possible conflicts between forest recreation and other uses in the Rocky Mountains, and establish criteria to integrate recreation with these other uses and to determine guides for recreation oriented largely toward fishing and big game hunting.

Plan of work: Determination will be made of (1) the desires of hunters, type of camping equipment used, location of camp, length of stay, attention to fire hazards and camp cleanup, and factors leading to vandalism,

(2) the kind and pattern of recreation use on existing sites; what periods of recreation use conflict with or complement other forest uses or uses of other public lands to help measure recreation use, effects of recreation use on reproduction and maintenance of tree species and stands, on logging operations and slash disposal, and effects of big game and livestock grazing, and uses of other public lands on outdoor recreation values. Study will be made of current hunting and fishing uses, improvements such as roads and trails and restrictive regulations. Information will be obtained on how to harmonize timber harvesting with forest recreation as contrasted to the aesthetic aspects; how timber harvesting can be modified to enhance forest recreation, especially road, stream, trail and lakeside zones and commercial stands of old growth timber.

1.14

University of Connecticut, Agricultural Experiment Station, Storrs, Connecticut
CHANGES IN RURAL SOCIAL PATTERNS RELATED TO SUBURBANIZATION
Walter C. McKain, Jr.
Supported by U.S. Department of Agriculture

Analyze three types of commuting on the part of rural residents: (a) occupational commuting -movement of rural people to and from their places of work and the related problems of decentralization of industry and shift between farm and nonfarm occupations; (b) commuting for business and professional services-patterns of retail trade and decentralization of business and professional services; (c) commuting for leisure time activities and social participation - the social attachments of rural people to the city - recreational land use in rural areas. Classify patterns of suburbanization existing in rural sections of one Standard Metropolitan Area. Identify special problems existing in each kind of suburb and indicate steps that are being taken or can be taken by rural people to meet these problems.

DESCRIPTION OF WORK
Seven major types of impact of the Connecticut Turnpike are being analyzed. Both primary and secondary data are used in the analysis. Three dimensions of proof are being used: (1) before and after comparisons, (2) the use of an area control group, and (3) the process by which change occurs.

1.15

National Rifle Association of America, Washington, D.C. 20036
NRA SAFETY RANGE PROJECT
Franklin L. Orth
Supported by National Rifle Association of America

The National Rifle Association is conducting research in the construction of a small arms firing range, of 20 firing points, with targets at 25 yards, 25 meters, 50 yards, 50 meters and 100 yards with an adjacent shotgun area.

Purpose is to develop construction techniques, which will completely contain the bullets within the range area proper, and reduce the escaping sound to the lowest possible level. This will make possible the construction and use of "Safety Ranges," for competition and recreational firing, in parks, recreational areas and heavily populated communities.

Continuous experiments will be conducted in the field of safety, sound suppression and mechanization.

The project is located near the town of Cheltenham, in Prince Georges County, Maryland.

Actual construction was started in May 1964, and will be ready for extensive tests in June 1966.

1.16

Economic Research Service, United States Department of Interior
ECONOMIC APPRAISAL OF LOCAL SOIL, WATER AND OTHER RESOURCE ORGANIZATIONS
Raymond D. Vlasin
Supported by U.S. Department of Agriculture

Object:
Analyze the organization, financing, operation, supervision, and coordination of resource and resource-related local organizations such as conservancy, recreation, wildlife, irrigation, drainage, watershed, soil conservation, forest preserve, and grazing districts and associations.

Plan of work: A general inventory will be continued of the kinds and numbers of local resource organizations found in different States. Secondary data, including that provided by the Census of Governments, will be used for the inventory. Distinctive and significant types of local organizations will be selected for analysis. Individual organizations will be chosen for case studies. Sources of data will include relevant statutes, regulations, organizations' reports and files, and interviews with local and State personnel and other informed persons. When possible, these will be supplemented with information from published bulletins and other research reports, journal articles, books and pamphlets. Particular attention will be given to the preparation of short bulletins reporting in depth the objectives, organization, supervision, operation, financing and coordination of resource development by particular local districts or associations and an evaluation of the extent to which form organization affects accomplishment of its objectives.

1.17

Washington, D.C.
NATIONAL LAND USE INVENTORY
Norman E. Landgren
Supported by U.S. Department of Agriculture

Object: To provide a continuing inventory of major agricultural and nonagricultural uses of land by States and regions; to identify trends in land use by States and regions, including shifts in major agricultural uses, reversion of cropland to grass and trees, development of agricultural lands, and the prior uses of lands being converted to nonagricultural uses; and to analyze trends in major land uses as they relate to present and future agricultural production requirements.

Plan of work: Data will be collected from various sources, analyzed and summarized to provide a continuing inventory of the amount of land in the U.S. in cropland, pasture and grazing land, woodland, forest, special-purpose, and other uses. Analyses will emphasize changes in acreages used to meet food and fiber requirements; trends in land going into special uses such as urban, industrial, highways, airports, reservoirs, parks, and other recreational facilities, etc.; amount of land being developed for agriculture; and future implications. Improvement in current estimates will be sought; and cooperation continued in the development and use of a common set of land use definitions. Effort will be made to improve estimates of cropland planted and cultivated summer fallow. Data will be obtained on acreages and productivity of improved pastures, soil improvement and cover crops and emphasis placed on acreage and quality of land under multiple-use management, and amounts and location of publicly owned land used for crops.

1.18

Bureau of Outdoor Recreation, U.S.D.I.,
Washington D.C. 20240
STUDY OF PRIVATE OUTDOOR RECREATION ENTERPRISES
Lester F. Faber
Supported by U.S. Department of the Interior

Major Objectives: 1. To provide an estimate of the number and type of privately owned outdoor recreation enterprises in the U.S. and in each of the nine Census Divisions. 2. To obtain a profile of these enterprises in terms of capacity, use, expansion plans, effect of other enterprises or resources nearby, fees charged, origin of patrons, nature and history of the operation, investment and financial problems.

Methodology: The survey used area sampling techniques, with a stratified probability sample of 332 counties. Stratification was based on proximity to centers of population, population size, water surface area, climate, income, etc. Within each Census Division, counties were placed in groups of equal numbers. From each group, two counties were selected with equal probability. Each selected county was divided into 16 to 20 area sampling segments and two or three of these segments were then selected with equal probability. During mid-summer 1965, interviewers cruised these segments and listed each observable private recreation enterprise and obtained an interview with the owner or manager. The recorded enterprises for each sample segment were checked against a telephone list of enterprises that had been prepared earlier with the assistance of a local committee in each of the sample counties. If the lists compared favorably for the sample segments, some assumptions were made about the accuracy of the list for the entire county.

Survey results have been tabulated and will be available for distribution in June, 1966.

1.19

Bureau of Outdoor Recreation, U. S. D. I.,
Washington, D. C.
FEDERAL AGENCY OUTDOOR RECREATION PLANNING
Dwight L. Patton
Supported by U. S. Department of the Interior

This study will examine the planning efforts of 17 Federal agencies having outdoor recreation programs. The purposes of the study are: (1) to develop an overview of Federal agency planning in outdoor recreation; (2) identify problems in the Federal outdoor recreation planning effort, particularly gaps and overlaps; (3) recommend adjustments, if needed, in the Federal outdoor recreation effort; and (4) develop a basis for more intensive studies of problems in outdoor recreation planning.

1.20

Bureau of Outdoor Recreation, U. S. D. I.,
Washington, D. C. 20240
OUTDOOR RECREATION RELATED FEDERAL PROGRAMS - AN INVENTORY AND DIGEST
Joseph T. Fromme
Supported by Department of the Interior

This survey-type study involves the inventory, analyses, and reporting on the present role in outdoor recreation of the Federal Government. It will cover, by program, the total effort of agencies in the Executive Branch of the government. It will include agency programs which directly affect outdoor recreation as well as those which involve outdoor recreation in a peripheral or secondary way. Indications are that between 70 and 90 Federal agencies will be contacted in the inventory.

For each program inventoried, the report will show: (1) A program description including objectives, recipients, quantities, area involved, and any other pertinent data; (2) Legislative and/or administrative authority for the program; (3) Publications dealing specifically with the program.

A separate section of the report will cover councils, boards, commissions and authorities which do not have outdoor recreation programs per se but which have advisory roles in the outdoor recreation discipline.

1.21

Florida Game & Fresh Water Fish Commission, Tallahassee, Florida
LIAISON WITH MOSQUITO CONTROL AGENCIES
E. Dale Crider
Supported by U. S. Department of the Interior

Objectives: To familiarize the project with the extent and nature of the mosquito control program in St. Johns, Brevard and Indian River counties. To exchange research findings of both agencies on vegetation succession and other pertinent data on impoundments, and to express the Commission's interest in their program. Through a cooperative study, investigate the results of waterfowl management practices and mosquito control practices covering permanent water impoundments, dewatered areas and natural fluctuating water areas.

Procedures: Contacts and discussions with personnel connected with these agencies will be conducted in conjunction with other field work. One day each month will be devoted to field investigations of waterfowl development nature in a cooperative study with the St. Johns Mosquito Control agent in order to provide data on ecological change, wildlife utilization and potentials, and recreational potentials on impoundments and dewatered areas related to waterfowl management practices and in relation to mosquito control activities.

1.22

Southern Illinois University, Carbondale, Illinois
RECREATIONAL DEVELOPMENT ON LAKE OF EGYPT
Stanley K. Brickler
Supported by Southern Illinois University

The research program continuing from February 1964, involves a four phase outdoor recreational research attempting to measure how recreational development of the Lake of Egypt - seven miles S. of Marion, Ill. Rt. 37- will affect the chemical and biological quality of the water, the shore line erosion - the amount, degree and control - the economic study of surrounding municipal communities, and a recreational use survey of the Lake of Egypt.

To date, 15 June 65, only in specific areas of the 2300 acres of water and 93 miles of shoreline, has been measured for biological and chemical analysis, and shoreline erosion.

The pH of the lake water - taken 2 June 64- measured a consistent neutrality of 7+-. 1 to . 5 . Biological analysis - June 64 to August 64 - of inhabited and uninhabited coves indicated via data-MPN- that in some areas, a high degree of Coliform and Enterococcus was found where housing and recreational developments existed. Stratification - biological and temperature- samples were made to depths of thirty-five (35) feet. Shoreline erosion has been measured where recreation development has disturbed and exposed the soil by removal of vegetation, and those shores unprotected from prevailing winds and wave action.

It is the hope of this researcher to continue through 1965 analyses and methods previously made so that a comparative study of how recreational development might affect virgin land and water.

1.23

Southern Illinois University, Carbondale, Illinois

A SURVEY OF THE PROVISIONS IN LEASING CONTRACTS AND RENTAL RATES PAID WHEN LEASING RURAL LAND FOR OUTDOOR RECREATION USES IN ILLINOIS

Dwight R. McCurdy
Supported by State of Illinois

The nation's population is expected to double in the next 35 years and participation in outdoor recreation is expected to triple. Much of the land used for outdoor recreation is and will be in public ownership. However, the private sector will have to help in the supply. One of the ways private landowners can open their rural lands for our nation is through the use of leases to persons and organizations. Illinois now houses 5. 6 percent of the nation's population and only 1. 6 percent of the nation's land. Approximately 98 percent of this land is in private ownership. Only 2 percent of Illinois is open to the public. Private land for outdoor recreation will be in great demand by the year 2000 if it is not opened for public use.

This survey has 3 primary objectives:
1. to determine what the various outdoor recreational uses are for which rural land is being leased in Illinois.
2. to determine the rental rates and method of payment to landowners for outdoor recreation uses.
3. to determine the nature of land rental contracts for outdoor recreation use.

From this survey, it is hoped that model leases for the various uses can be written. These models should be equitable from the lessee and lessor's point of view and still reflect the prevailing situation throughout the state for each use.

Questionnaires have been mailed out with a 35% response and are now being analyzed by land use categories. The project started in Sept. 1965 and should be completed by Sept. 1966.

1.24

Purdue University Agricultural Experiment Station, Lafayette, Indiana

OPTIMIZING COMBINATIONS OF OUTDOOR RECREATION AND OTHER ALTERNATIVE ENTERPRISES

J.C. Callahan
Supported by U.S. Department of Agriculture

Objectives:
1. To determine types of outdoor recreational opportunities suitable for private investors having different levels of management ability and other contributory resources.
2. To evaluate the optimum allocation of resources among relevant outdoor recreational and other land-using alternatives for selected cases and typical ownership situations.

Work Proposed:
Cost and return data will be collected from selected outdoor recreational enterprises. These data and other secondary enterprise data will be analyzed using existing linear programming

models to estimate optimum allocation of available resources for specific and general land ownership situations. Descriptive analyses will also be made of management functions with particular attention focused on unique management abilities and requirements necessary for the successful operation of outdoor recreational enterprises.

1.25

Iowa State University of Science and Technology, Ames, Iowa
COMPETITIVE RECREATIONAL USES OF SELECTED IOWA LAKES
Arnold O. Haugen
Supported by U. S. Department of the Interior

Much of today's recreation activity is water oriented, with clean water increasing in importance to outdoor recreation. Use even for recreation purposes is becoming so competitive that conflict in use is occurring. This study is designed to secure, organize and evaluate data on recreational uses of waters at Spirit, Okoboji, Clear, Eagle and Little Wall Lakes in Iowa with a view to formulating a management plan for recreational uses of these waters.

Uses (their degree of compatibility or conflict) to be studied include hunting, fishing, canoeing, sail boating, rowboating, swimming, scuba diving, water skiing, bird study, and for esthetic appreciation. The design of the investigation is to be on a statistically designed sample basis determined with the aid of the Statistical Laboratory at Iowa State University.

Basic data on such recreational uses should provide the information needed for some type of zoning by time or area and for the establishing of a recreational use policy.

The study is to be conducted from September 1965 to June 1967.

1.26

Northeastern Forest Experiment Station, U. S. Department of Agriculture, Berea, Kentucky
A STUDY OF INDIVIDUALS AND ORGANIZATIONS LEASING PRIVATELY OWNED LAND FOR OUTDOOR RECREATION IN INDIANA, KENTUCKY AND OHIO
James C. Whittaker
Supported by U. S. Department of Agriculture

The objectives of this study are to determine the amount and kind of privately-owned land being leased for outdoor recreation in the study region; to determine the rates paid per acre per year; to determine the amount and kinds of recreational use made of leased land; to learn how lease rates being paid were determined; to determine area wanted in the future; to learn the relative importance of different kinds of land being leased with respect to particular recreation activities; and to learn the minimum area and length of lease preferred.

1.27

Berea, Kentucky
REDUCTION IN DAMAGES TO FORESTS BY IMPROVING MINING AND REHABILITATION PROCEDURES
Robert F. May
Supported by U. S. Department of Agriculture

Object: To develop practical methods of reducing damage to water, wildlife, recreation, timber and range resources during surface mining operations and of restoring, these resources after mining in rugged, forested watersheds of the Appalachian coal fields.

Plan of work: Study will be made of (1) a system of access and pit coal haul roads to lessen sedimentation and promote efficient pit operation, (2) present operations as compared with a well-planned system of haulage roads, (3) excavating, placing, and storing overburden removed farm coal seams in order to prevent erosion, flood and sediment discharges that might impair water courses and water quality, (4) traces and factors that affect weathering, detachment, transport and deposition of rock-soil mixtures in order to prevent erosion and sediment discharge, (5) methods to identify pyritic materials, which may have deleterious effects on water quality and use, and rehabilitation of disturbed areas, (6) chemicals and chemical reactions on or near the surface of spoil banks, pits, highwalls, and waste dumps that affect stream pollution, and post mining revegetation, (7) methods for using vegetation to obtain rapid stabilization of such areas, & (8) nature of several hydrologic processes that influence water quantity and quality from strip mining areas and associated haulage roads.

1.28

Louisana State University, Agricultural
Experiment Station, Baton Rouge, Louisiana
FOREST RECREATION IN LOUISIANA
Robert W. McDermid
Supported by U. S. Department of Agriculture

The objectives are: (1) to compare contributions of industrial and non-industrial forest ownership to outdoor recreation, (2) to determine localities where there are planned recreational developments, (3) to learn which segments ments of the public are sought as recreational clientele, (4) to determine the acreage of forest land open to public recreation, (5) to ascertain what types of recreation facilities are available to the public, (6) to uncover problems caused by recreationists, and (7) to obtain landowners' opinions as to who should provide additional recreational facilities.

The work proposed will be to determine the names of all owners of 15,000 acres or more of forest land in Louisiana, to interview each of these landowners using a detailed questionnaire, and to analyze the data so obtained on the IBM 1620 computer. Important variables will be isolated. Chi-square and correlation analysis will be used to determine statistical significance of results. If the findings are significant, they will be published in appropriate media.

1.29

University of Massachusetts, Amherst,
Massachusetts
SURVEY AND EVALUATION OF SMALL
ARTIFICIAL RECREATIONAL PONDS IN
CENTRAL MASSACHUSETTS
James A. McCann
Supported by U. S. Department of the Interior

Construction and utilization of small artificial ponds in Massachusetts has increased rapidly during the postwar period. Fish management policy of these ponds has been based on data obtained in studies outside the general New England area.

This study is designed to increase our present knowledge of the importance of small artificial ponds as a source of recreation in Massachusetts and to develop a concrete fish management program for these ponds for the area. The project will be divided into three phases: Phase I, to locate, enumerate, and classify by type artificial ponds in central Massachusetts; Phase II, to select representative ponds and conduct detailed seasonal, physical, and biological studies; Phase III, to establish controlled model ponds and evaluate various management policies formulated through the findings of the first two phases.

1.30

Harvard University, Cambridge, Massachusetts
SOME EFFECTS OF LANDSCAPE ENHANCEMENT ON TIMBER PRODUCTION
Ernest M. Gould, Jr.
Supported by U. S. Department of Agriculture

Object: To improve systems for studying rational allocation of the resources needed to generate a satisfactory flow of products and services from a forest environment. Specifically, the research will be concerned with two competing uses of the forest: timber production and the natural beauty of forest landscapes.

Plan of work: An existing computer based model developed by the US Forest Service will be used to make an initial analysis of alternative land management programs. This should lead to an improved model and a more refined evaluation of alternatives. The systems analysis to be used provides the ability to define criteria and develop models which in turn specify the information needed to arrive at interim solutions. The present Harvard University Fortran Forest Simulator (HUFFS) will be used to obtain the first "solution". HUFFS will be operated for a given forest environment to discover the impacts that landscape design considerations will have on timber production. In light of the information gained during the research, the HUFFS will be modified to facilitate further analysis of management alternatives.

1.31

Division of Fisheries and Game
Westboro, Mass.
CONNECTICUT RIVER HARVEST AND POPULATION STUDY BY CREEL CENSUS AND ANGLER COUNTS, Robert S. McCraig
Supported by U. S. Department of the Interior

The object of this job is to obtain fish harvest data and angler pressure estimates on approximately 33.8 miles of the Connecticut River from the confluence of the Deerfield River to the Holyoke Dam. This segment is the second of three segments each of which involves a portion of the approximate 68 miles of the entire river length within Massachusetts. The first of these segments was completed on June 30, 1965, and the last will be commenced July 1, 1966. Data accumulated over the entire project period, three years, will be utilized to evaluate the recreational sport fishing attributes of the river to formulate future management and multiple recreational usage plans.

Objectives will be attained through creel census and angler counts on the middle segment of the river and by aerial angler counts along all three segments simultaneously to relate segmental to total pressure.

1.32

University of Michigan, Ann Arbor, Michigan
THE EFFECT OF PUBLIC RECREATIONAL DEVELOPMENT UPOM SELECTED PRIVATE LANDS IN MICHIGAN'S UPPER PENINSULA
Darrell Lewis
Supported by U. S. Department of Agriculture

A land use history and inventory of an 80-acre tract of private land adjacent to recently developed National Forest recreation lands. The same tract is bisected by a road which will possibly be linked to a loop road leading to Porcupine Mountains State Park. Follow-up studies are planned as a check on land development and changing tax base.

1.33

University of Michigan, Ann Arbor, Michigan
AN ANALYSIS OF A PRIVATE LUXURY CAMPGROUND IN MICHIGAN'S OTTAWA NATIONAL FOREST, Michael G. Clarke
Supported by U. S. Department of Agriculture

A comparison of the factors affecting use of a public rustic U. S. Forest Service campground and a private luxury campground on the same lake in the Ottawa National Forest in Michigan.

1.34

University of Michigan, Ann Arbor, Michigan
THE RECREATIONAL USE OF INDUSTRIAL FOREST LANDS IN CERTAIN COUNTIES OF MICHIGAN'S UPPER PENINSULA
Richard Crowther
Supported by U. S. Department of Agriculture

A survey related to public recreational use of private forest lands, with emphasis on factors encouraging and discouraging recreational use.

1.35

University of Michigan, Ann Arbor, Michigan
INCORPORATING SCENIC CONSIDERATIONS INTO HIGHWAY INVESTMENT DECISIONS
S. Philip Shapley
Supported by U. S. Department of Agriculture

My Doctoral thesis examines the problem of incorporating scenic considerations into highway investment decisions. In particular, it is hoped specific recommendations can be made as to how scenic considerations can be included in the highway planning process so that the total benefit of a road to society, is maximized, given a budget constraint. Economic and political science theory suggest how we should approach this problem.

The specific gains that roads provide to society can be classified into:

1. a scenic experience (or more broadly, a positive driver response)
2. safety
3. traffic movement

In providing for these specific gains in highway plans, the landscape architect and highway engineer are key individuals. The working relationship between these two individuals and the decision mechanism for choosing among alternative highway plans with different gain levels, are important if we are to approach maximum total benefit from our roads, given a budget constraint. Therefore, I am studying how the architect can best fit into the highway planning process. The problem of whether the architect's concepts of what produces a scenic experience in highway users are correct, is receiving attention.

Results indicate there often is a conflict between the goals of scenic experience versus safety and traffic movement. Means of settling these conflicts, are being examined.

1.36

University of Michigan
Ann Arbor, Michigan 48104
ESTABLISHING AND DEVELOPING THE SELF-GUIDING TRAIL AS AN INTERPRETIVE MEDIA IN URBAN NATURAL AREAS
Terry Sharik
Supported by University of Michigan

A case history of a 14-acre deciduous forest in Ann Arbor being spared from active recreation use through the establishment of an interpretive trail. Studies being performed on the design of the nature trail leaflet, wording, and visitor's learning ability.

1.37

University of Michigan, Ann Arbor, Michigan 48104
INTERPRETATION OF THE ANCIENT BRISTLECONE PINE FOREST AND THE WHITE MOUNTAINS OF CALIFORNIA
Richard A. Kuehner
Supported by University of Michigan

To design a program for interpretation of the Ancient Bristlecone Pine Forest, which houses the "Oldest Known Living Thing."

The objectives:
1. To determine what types of interpretive media to use.
2. To select goals for effective interpretation.
3. To define and discuss the range of subjects that might be included in the interpretive program.

1.38

University of Michigan
Ann Arbor, Michigan, 48104
OPEN SPACE RESERVATIONS IN SUBDIVISIONS - A CASE STUDY IN PROVIDING LOCAL RECREATION LANDS
Terry W. Hoffman
Supported by University of Michigan

A case history of a tract of farm land near Flint, Michigan being considered for subdivision. Under consideration are such factors as the natural history of the area, local tax structure, cluster developments, home associations, and local recreation agencies.

1.39

University of Michigan
Ann Arbor, Michigan
ORGANIZATIONAL ARRANGEMENTS IN URBAN RIVER BASINS TO PROVIDE RECREATION & POLLUTION CONTROL
Spenser W. Havlick
Supported by University of Michigan

This research activity is an analysis of major impasses in establishing organizational arrangements in an Urbanized River Basin. Primary emphasis is directed toward devising mechanisms which will more effectively cope with a trio of river basin problems typical of watercourses in metropolitan regions. The problems under scrutiny are increasingly inadequate outdoor recreation facilities, water pollution and flooding. The Milwaukee River of Southeastern Wisconsin is the focus for this research endeavor.

1.40

University of Michigan
Ann Arbor, Michigan
A STUDY TO INVESTIGATE THE FEASIBILITY OF INTEGRATING SOCIAL AND PHYSICAL FACTORS OF LAND USE IN A RECREATION PLANNING PROCESS.
Herbert Giesbrecht
Supported by University of Michigan

The object of this study is to identify a need for and problems of integrating physical and social aspects of land use in a design solution to land resource planning. More specifically, the intent is to demonstrate that a conscious concern for the social aspects of land use, when properly integrated with physical design techniques, can result in an improved land planning process.

The procedure will involve an analysis of the physical design and social factors of several case studies, and an attempt to integrate these factors in a planning process model. It will also include a consideration of the implications of this integrated approach, on the practical planning process as applied to outdoor recreation.

The project was begun in 1966 and will be completed in 1968.

1.41

University of Michigan
Ann Arbor, Michigan 48104
IMPLICATIONS OF WILDERNESS VALUES IN THE NATIONAL PARK SYSTEM
Robert Broderick
Supported by University of Michigan

A study concerned with the conflicts of basic park policy and public attitudes after natural catastrophic phenomena inflict damage on a natural area.

1.42

University of Michigan
Ann Arbor, Michigan 48104
FACTORS CONTRIBUTING TO MORE EFFICIENT RECREATION PLANNING FOR MICHIGAN'S STATE FOREST CAMPGROUNDS
Charles F. Krebs
Supported by Michigan's Department of Conservation

A study which seeks to:

1. Determine adequacy of present forest campground design and facilities to meet present needs for various camper interests.
2. Reasons for campers selections of various sizes and locations of forest campgrounds.
3. Changes in preferences, equipment, and space requirements of campers as indications of future campground location and design.

1.43

University of Missouri, Agricultural Experiment Station, Columbia, Missouri
THE CARRYING CAPACITY OF DIFFERENT FOREST SITES FOR DIFFERENT RECREATIONAL USES
R. H. Westveld
Supported by U. S. Department of Agriculture

Objectives: To determine the effect of different kinds and intensities of recreational use in different types of forest stands on the soil.
B. To determine the effect of different kinds and intensities of recreational use in different types of forest stands on vegetation.
C. To determine the point at which recreational use of forest land causes a deterioration in the recreational value of an area and/or deterioration in other values (watershed, wildlife, etc.) of the recreational area and adjacent areas (based on results of A and B).
D. To establish standards of carrying capacity of different forest sites for different recreational uses (based on results of C).

Description of Work: Objectives A and B will be carried out on small plots in different types of forest stands on several soil types under varying intensities of recreational use. Sites which have been used for recreation for an extended period and sites not now so used but which will be developed for use will be studied. Bulk density, pore volume, air capacity, field capacity, permanent wilting percentage, soil texture and infiltration capacity will be determined. Plants will be inventoried and the number of dead roots determined. Areas will be photographed periodically. Recreationists will be counted as a measure of use intensity. Objectives C and D will be developed from the results obtained under the first two objectives.

1.44

University of Missouri, Agricultural Experiment Station, Columbia, Missouri
FACTORS AFFECTING RESOURCE USE AND INCOME POTENTIAL
Ronald Bird
Supported by U. S. Department of Agriculture

The objectives of this study are (1) to aggregate the present and potential use of human and other resources in agriculture, recreation and tourism, forestry, manufacturing, retail trade, personal services, and others for the Missouri Ozarks, (2) to determine a frequency distribution of families by levels of income that will result from optimal development of resources, (3) to examine the institutional control of resources and the influence of local custom and desires on their development, (4) to describe the impediments to adjustments in resource use and evaluate the steps that may be taken to lessen their effect, (5) to determine the rapidity with which these adjustments may take place.

Objectives 1 and 2 will be pursued the current year. Secondary data will be primarily used. U. S. Census data, highway traffic counts, and various studies relating to resource adjustments in agriculture, forestry, recreation, manufacturing and etc. will be combined in an analysis of development for the region. Primary investigations will be instigated to provide supplementary data when needed. Acceptable sampling techniques and analysis will be followed when primary investigations are required.

1.45

Montana State University, Agricultural Experiment Station, Bozeman, Montana
A STUDY OF RECREATION USE OF FOREST LANDS IN MONTANA
Lawrence C. Merriam
Supported by U. S. Department of Agriculture

Objectives:
1. Complete site inventory
2. Data on use
3. Identify problems
4. Analysis of data and problem solution
5. Develop basis for state wide plan

Procedure:
Obtain data from previous studies and existing sources, for sites and use. Identify and define problems. Develop basis for problems analysis and alternatives for solution. Hold series of seminars and conferences with responsible agencies, groups and individuals for developing plan for Montana.

Major species: Ponderosa pine, Western larch, Douglas-fir, Engelmann spruce.

1.46

Montana State University, Agricultural Experiment Station, Bozeman, Montana
A STUDY OF STANDARDS AND MANAGEMENT OF WILDERNESS LANDS
Lawrence C. Merriam, Jr.
Supported by U. S. Department of Agriculture

Objectives and Description of Work:
To determine by study of several areas in Montana what constitutes wilderness land and standards for same. To analyze wilderness concepts, users' ideas, wilderness management objectives and relate to future land allocation for wilderness.

Work will consist of field study of Bob Marshall Wilderness Area, back country of Glacier National Park, and Mission Mountains Primitive Area - all in Montana- as to wilderness land characteristics. Relate to existing wilderness criteria and literature on the subject. Make study of users as to wilderness standards. Attempt to derive standards and management approach applicability.

1.47

Nevada Fish and Game Commission, Reno, Nevada
WHEELER DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS
Dale Lockard
Supported by U. S. Department of the Interior

An intensive creel census study is in progress on a state-owned warm water fishery to determine total use and harvest data. Random census is collected from various other district waters for collection of needed biological information.

Fingerling trout plants into various district reservoirs will continue in order to determine their success and value or needed changes in these introductions. Experimentation will continue on various new and modified types of fish tags.

A life history study of the largemouth bass is continuing on a shallow reservoir which harbors only this single species. Due to the shallow and fertile basin the production and growth compare with waters in the warmer southern climes.

Continued effort will be placed upon the preservation of our fishable waters, public and private, threatened by pipelines, ditching, erosion, pollution and closure.

Four fisheries are being re-developed following chemical treatment to remove trash fish problems. They include warm and cold water fisheries, and a combination trout-bass fishery. Another stream was treated prior to impoundment of a new reservoir which will be developed and managed as a trout resource.

An "Angler's Guide to Eastern Nevada" is in preparation. Also, a final report for publication, "Total Angler Use and Economic Value of a Small Reservoir in Semi-Arid South-Eastern Nevada" is near completion.

A reservoir site is presently being investigated which if developed, will result in a recreational resource where very little has been available.

1.48

Nevada Fish & Game Department Reno, Nevada
OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA
William A. Nisbet,
Supported by U. S. Department of the Interior

General objective is to provide adequate recreational fishing with existing fisheries resources, and develop new potentials within the district. Through creel census and marked fish introductions, data will be gathered to determine the best trout stocking practices for optimum angler success, trout growth and survival. Periodic inventories on environmental conditions of streams and lakes within the district will be undertaken to reveal possible limitations (food, pollution, rough fish infestations, temperatures, physical features, etc), or beneficial factors. Using sampling techniques fish populations will be determined in various bodies of water in the district. Acquiring water rights, access to and along fishing areas, lands for reservoir sites and lakes or ponds in order to create and maintain suitable areas for fishing purposes within the Owyhee District is also stressed. Additional suitable sites in which to introduce either warm or cold water fish will be sought, and such initial introductions will be carried out.

1.49

New Hampshire State Planning Project,
Concord, New Hampshire
LAND WATER RECREATION
Mary Louise Hancock
Supported by Urban Renewal Administration

Report # 7- The privately owned camp grounds of New Hampshire. (No additional information received).

1.50

University of New Mexico, Albuquerque, New Mexico
WILDERNESS AREA CLASSIFICATION AND PROBLEMS OF PRIVATE USE AND LAND OWNERSHIP WITHIN WILDERNESS AREAS
Richard E. Murphy
Supported by University of New Mexico

This research project has grown out of the investigator's work on wilderness areas, including an M. A. thesis on Wilderness Areas of the United States, George Washington University, 1952, and a doctoral dissertation on The Problem of Land Ownership in the Wilderness Areas of the U. S. National Forests, Clark University, 1957. This material is being up-dated and enlarged to include mining and grazing problems. The intention is to relate the problems of use and land ownership to wilderness area definition, and to map areas of relative wilderness attributes with particular emphasis on the wilderness and primitive areas designated as such in the National Forests of the United States. While the bases for the present project were laid in the work dating back to 1952, the revision, synthesis, and additions were started only this year, and an initial presentation, in the form of an article for submission to one of the scholarly journals is planned for 1968.

1.51

Cornell University, Ithaca, New York
WATER SUPPLY-DEMAND
David J. Allee
Supported By U. S. Department of the Interior

Generally, the objective of the project is to provide new or improved knowledge about the supply of water available to New York and the adjoining states in the Northeast region, including ultimately the influence of Canada, and the demands that will be made on such supplies for domestic, municipal, industrial, agricultural and recreational purposes; for the propagation of fish, aquatic life and wildlife; and for other purposes.

Specifically, the objective of the project is to undertake hydrometeorological and engineering analyses, socio-economic investigations and data processing and programming studies so as to (a) estimate present water use, potential supply and capacity of existing development on a comparable and uniform basis; (b) estimate the supply functions for water (i. e., what each successvie increase in developed capacity might cost); (c) construct projections of water use by each water function; and finally match the demand data to the water supply data. Subsequent approximations would aim at refining information with particular emphasis on water supply data and on improving the evaluation of water demand projections, considering the cost of meeting such demands.

1.52

Cornell University, Agricultural Experiment Station, Ithaca, New York
MULTIPLE PURPOSE WATER RESOURCE INVESTIGATIONS
L. S. Hamilton
Supported by U. S. Department of Agriculture

Objective: To investigate critical multiple-use problems with respect to New York's surface waters, so that information is made available on which to base both private and public policy with respect to the use and development of this vital resource.

Description of Work: Water-use conflicts are becoming increasingly severe even in the humid East. New York State already is experiencing conflict between irrigation, navigation, recreation, power production, pollution, municipal water supply, industrial use and flood control. Some of these conflicts will be examined as case studies with the goal of criteria for water allocation and policy formulation. The initial case study will be an analysis of municipal water supply reservoirs in New York, focusing on the degree of multiple use of the water and watershed lands.

1.53

Cornell University, Agricultural Experiment Station, Ithaca, New York
THE UTILIZATION OF RURAL LAND IN TOMPKINS COUNTY, NEW YORK
H. E. Conklin
Supported by State of New York

This project will provide factual background to aid rural people develop both private and public programs for more effective utilization of land for both farm and nonfarm purposes.

DESCRIPTION OF WORK - (1) Copy property boundaries for all parcels of over 2 acres. (2) Identify full-time, part-time and spare-time farmers and map the boundaries of the lands they are using. Complete as much of this step as possible from secondary sources and informed persons. Contact farmers for remainder. (3) Classify fulltime and part-time farms both individually and by areas on the basis of income-expectancy appraisals. Identify separately any areas in which long-run incomes probabilities or possibilities contrast sharply with short-run probabilities or possibilities. (4) Survey a sample of nonfarm land owners to determine their present characteristics, present land use, and land use interests. (5) Investigate trends in concentrated urban uses, in public and commercial private recreational uses, and in related matters. (6) Outline alternative general rural development possibilities for the County.

1.54

Cornell University, Agricultural Experiment Station, Ithaca, New York
BIOLOGY AND CONTROL OF FLIES ANNOYING TO MAN AND ANIMALS.
J. G. Matthyssee
Supported by State of New York

To make laboratory and field studies on the biology and control of houseflies, stable flies, and horse flies. To study the biology, seasonal occurence, and control of species of Chironomus, Chaoborus, and other gnats troublesome to the inhabitants of resort areas, and visitors to park areas in New York.

1.55

National Recreation and Park Association,
8 West Eighth Street, New York, N. Y. 10011
INTERNATIONAL SURVEY OF MOBILE RECREATION FACILITIES
S. H. Friesurgh
Supported by National Recreation and Park Association

A questionnaire survey of recreation and park agencies in the United States and abroad, to ascertain the extent to which mobile recreation facilities (bandwagons, shells, portable stages, artmobiles, bookmobiles, mobile pools and rinks, zoomobiles, showboats, etc.) are being operated. Information is being sought on their ownership, cost of construction and operation, design and construction features, contents, operating personnel, insurance and traffic regulations and other official requirements, scheduling and publicizing, and advantages and limitations of the units.

Publication of an illustrated manual based on the information gathered is planned.

1.56

National Recreation and Park Association,
8 West Eighth Street, New York, N. Y. 10011
1965 RECREATION AND PARK YEARBOOK
M. F. McGann
Supported by National Recreation and Park Association

An inventory of municipal and county parks and acreage; personnel employed for park and/or recreation service; and capital and current operating expenditures for recreation and parks in 1965 or the fiscal year ending in 1965, by municipalities and counties in the United States. The Yearbook is compiled every five years, and a particular effort is being made to secure reports from municipalities and counties that reported in 1960, so that growth can be ascertained.

Information will be secured by questionnaire, supplemented by correspondence and telephone. The survey began and will be completed in 1966. Publication is scheduled for late 1966 or early 1967.

1.57

Syracuse, New York
COOPERATIVE FOREST RECREATION PROJECT WITH NEW YORK STATE COLLEGE OF FORESTRY
Elwood L. Shafer, Jr.
Supported by U. S. Department of Agriculture

Object: To conduct cooperative research with Syracuse University on problems concerning planning, improving, protecting, and managing forest recreation; further, to stimulate greater interest of students at the graduate level in problems of forest recreation.

Plan of work: Investigations will be conducted on: (1) methods for projecting future recreation demands, including socio-economic characteristics of Adirondack campers; preference for recreational facilities in NE Pennsylvania state parks; use of colored slides for such measurement; preference for campsite design and facilities by use of architectural models; (2) soil and plant relationships, including fertilization and cover treatments to maintain vegetation on heavily used recreation areas; and alternatives of management for timber stands in areas of concentrated recreational use; (3) sociological aspects, including a secondary analysis of "on-site" questionnaire data collected in the northeastern states; effect of creel catch and scenic surrounding on fisherman satisfaction and enjoyment; and methods of measuring nonmonetary values of outdoor recreation; and (4) financial aspects, including evaluation of present criteria used for purchase or allocation of land for outdoor recreation; and of recreation use and trends for the purpose of predicting volume, place, and periods of future use of recreation space and facilities.

1.58

North Carolina State University, Raleigh,
North Carolina
CRITERIA FOR EVALUATING THE QUALITY OF WATER BASED RECREATION FACILITIES
Charles C. Stott
Supported by U. S. Department of the Interior

Statement of Problem - On the basis of opinions of users of water based recreation facilities and the opinion of professional recreation experts, rating standards will be established for quality of swimming, boating, and fishing. These standards will be used in evaluating the adequacy of facilities for at least one geographical area.

Objectives - To establish criteria of a practical nature that would aid in determining the quality of water based recreation facilities; to develop standards for evaluation purposes; to develop standards that would serve as guidelines for the operators of water based facilities.
Procedures - To determine existing practices relative to current standards, to determine from the user of water based recreation facilities data essential to the adoption of criteria; to determine acceptable practices

as performed by practitioners of good professional reputation. Major Subjects* - *Marinas: boat docks, boat ramps, boat hoist, marine repair and services, boat mooring, boat anchoring, boat wet storage (boat slips), boat dry storage, floats, docks, piers, tackle shop and supplies, refreshment services, fishing bait, toilet, buoy safety markers; *Swimming Areas: bathhouses, beaches, lifeguard staffing patterns, swimmer lifeguard ratio, swimmer loads; *Fishing Facilities: fishing piers, boat rentals, rescue squads.

The data will be collected over an area of several states in the East during June, July, and August, 1965. Such data will be processed at North Carolina State University at Raleigh.

1.59

Columbus, Ohio
RECREATIONAL OPPORTUNITIES AND RESOURCES ON SMALL WOODLANDS
E. A. Johnson
Supported by U. S. Department of Agriculture

Object: To assess the attitude of small woodland owners toward use of their recreational resources; to discover ways of motivating owners and helping them to effectively use the forest recreation resource on small woodlands in the Eastern United States; and to find principles and research methods for interpreting the personal and social values received from a forest recreation experience.

Plan of work: Forest recreation resources on small woodlands and the current and prospective recreation supply and demand will be determined; the costs and benefits, both public and private, appraised for an outdoor recreation enterprise; and effort will be made to overcome obstacles that keep woodland owners from effectively using their forest recreation resources. Effort will be made to learn the needs, wants and motives of individuals using the forest recreation resources; and to learn how interpretative programs can enhance visitor appreciation and thereby enjoyment of forest recreation experience. These sociological parameters will be integrated into a classification of recreation resources for field application. The recreation researchers' role will be studied—design, evaluation and development of standards and specification—in expanding and improving the recreational utilization and acceptance of hardwoods.

1.60

Oregon State University,
Agricultural Experiment Station
Corvallis, Oregon
INVESTIGATION OF AQUATIC WEED PROBLEMS AND MEANS OF CONTROL WITH EMPHASIS ON BRAZILIAN WATERWEED
Carl E. Bond
Supported by State of Oregon

OBJECTIVES:

1. To determine means of controlling Brazilian waterweed and other nuisance aquatic plants.

2. To assess impact of control measures on recreational, industrial, and domestic uses of the bodies of water involved.

PROGRESS TO DATE

Preliminary screening tests have been carried out to determine the effectiveness of a number of chemicals against Brazilian waterweed, and secondary tests using some of the more effective have been run at several concentrations. Cultures of aquatic vertebrates are being started.

1.61

Corvallis, Oregon
DISEASES OF SEED, SEEDLINGS, AND PLANTATIONS; OF WOODY PLANTS ON RANGE AND RECREATION AREAS; AND OF TIMBER PRODUCTS
George M. Harvey
Supported by U. S. Department of Agriculture

Object: To identify and evaluate the specific causes of damage by disease to reforestation projects, range and recreation areas, and timber products; and to develop methods to reduce losses from these causes.

Plan of work: With minor exceptions, no studies under this project are now in progress. Studies planned, definitely or tentatively, for the next 5 years are: (a) To identify the fungi commonly associated with seeds of *Abies* spp., to determine their effects on germination and seedling survival, and to develop methods for their control. (b) To determine the extent to which site deterioration is responsible for the unhealty condition of certain plantings, and laboratory studies for more accurate evaluation of specific site factors that may be involved. (c) To identify the causes of, and determine the extent of damage by, the principal diseases of range plants. (d) To determine by means of field studies the ways on which forest health is impaired by concentrated human use, and the extent of such damage in various forest types.

1.62

Pennsylvania State University, Agricultural Experiment Station, University Park, Pennsylvania
WILDLAND RECREATIONAL MANAGEMENT
J. L. George
Supported by U. S. Department of Agriculture

1. Develop, evaluate, and compare various combinations of uses of timber, wildlife, water, and land resources to determine the degree of compatibility of such use with the economic and social needs of our society and the interests of the landowner.
2. Explore the possibilities of developing unique recreational activities in the use of a wildland area, introducing new game species, and devising new techniques or methods of harvesting wildlife and timber resources on a wildland area.
3. Determine the characteristics of the demand curve for various recreational uses of a wildland area at different user fee rates. Relate the demand curves to production functions and cost analysis resource combinations for recreational purposes.

To be conducted on Quehanna, 40, 000 acre wilderness area, in conjunction with the state action agencies relating to forests and water, game, and fish.

1.63

Warren, Pennsylvania
PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION
Hubert D. Burke
Supported by U. S. Department of Agriculture

Object: To provide guides to plan, improve, protect and manage forest recreation facilities through study of physical, social and economic aspects of recreation and through evaluation of these aspects as they are related to other uses.

Plan of work: A photo record will be made of vegetational changes at Chapman Dam State Park, Pa. Projecting future recreation demands will include mapping of use of recreation areas, study of visitor motivation and attitudes, socio-economic characteristics of campers, recreation preferences, overnight use on unsupervised campgrounds, etc. A flame-actuated convection stack will be developed to remove odors from pit toilets. Studies will be made of timber management alternatives; survival and vigor of trees; soils as a factor in deterioration of recreation areas; esthetic recovery of forests under different cutting and site conditions; recreation use and trends; motivating factors in use of recreation areas; effect of distance from metropolitan centers on composition of recreation users; variation in social and economic characteristics and types of recreation activity preferred in the NE; attitudes toward multiple-use of recreation areas, formulas to express recreation use; recreation area costs and returns, and financial impact on surrounding communities; garbage disposal signs, picnic tables, improvement in swimming water and beaches, water purification without electricity, and road and trail improvement.

1.64

University of Puerto Rico, Rio Piedras, Puerto Rico
DETERMINATION OF SAFE LEVELS OF POLLUTION IN PUERTO RICO
Antonia Santiago-Vazquez
Supported by U. S. Department of the Interior

Some Puerto Rico Bays are receiving raw sewage and other organic pollution in high concentrations. Damage has been done to the fish population and to the recreational use of surroundings beaches, the best example being the Bay of Mayaguez just near the Campus of the College of Agriculture and Mechanic Arts where the Institute will have its headquarters.

It is proposed to investigate the degree of contamination of the bay to evaluate the proportional effect of the different factors which contribute directly or indirectly to its actual and future sanitary conditions and its effects on the fish, ecology and the recreational aspect of the bay and surroundings.

This study shall be carried on through the systematic measurement of parameters such as BOD, dissolved oxygen, solids, caliform group, biota, etc. Similarly, physical, chemical, and meterological factors effecting the locality of the Mayaguez Bay will also be measured. Efforts will be also made to identify and describe flow patterns near and inside the bay. The goal will be to establish the relationships among the most important of the factors that enter into the problem, with the purpose of establishing criteria for prediction for similar situation in tropical bays.

1.65

University of Rhode Island, Agricultural Experiment Station, Kingston, Rhode Island
ECONOMICS OF USE AND DISTRIBUTION OF FRESH WATER RESOURCES IN RHODE ISLAND, A. D. Jeffery,
Supported by U. S. Department of Agriculture

Objectives: (1) Establish the future water resource needs of the State for residential, industrial and recreational use. (2) Develop plans to better utilize the water resources and improve its distribution in the State.

Description: A team of land economists would review the presently existing ground and surface water maps and engineering studies. This data would be re-evaluated in conjunction with more recent land use base maps and projected long-range development plans currently in the process of being made. Together these plans would indicate the anticipated needs, the location of these needs, and by the budget analysis, the most economical long-run means of supplying these needs. System planning could then be accomplished in a manner consistent with maximum welfare.

1.66

University of Rhode Island, Agricultural Experiment Station, Kingston, Rhode Island
DEVELOPMENT OF RHODE ISLAND FORESTED LANDS, Charles Gratto
Supported by U. S. Department of Agriculture

(1) Evaluate the potential of Rhode Island forested lands for recreation for the production of forest products, and for other uses consistent with the optimum economic development of the state.
(2) Develop techniques to facilitate desired land use adjustment in the forested areas of Rhode Island.

Procedures: (1) Establish the ownership, parcel size, and present use of forested land holdings in selected areas of Rhode Island. (2) Determine what relationship exists between present use of forested lands and the social and economic characteristics of the persons who own them. (3) Describe the attitudes of owners toward their forested holdings and determine their interest in developing commercial, forest oriented enterprises on these lands. (4) Map Rhode Island forested lands by species composition, height, and density, using aerial photographs supplemented by field surveys. (5) Assess through the use of budget analysis, the economic benefits that are to be realized from alternative uses of forested lands. (6) Evaluate, insofar as is possible, intangible social benefits (e. g., health benefits, aesthetic returns) that might accrue from forest land development.

1.67

South Dakota State University Water Resources Research Institute, Brookings, South Dakota
WATER QUALITY AND PRIMARY PRODUCTION OF SOUTH DAKOTA LAKES
Norman D. Schoenthal
Supported by U. S. Department of the Interior

Efficient water resource management in South Dakota must consider water quality and productivity as part of its overall program. A knowledge of the water quality is important in recreation development, fisheries management and pollution control. Knowledge of water quality in South Dakota lakes in lacking except in restricted regions. This study will include a systematic water quality evaluation of selected lakes (in various drainages) throughout the state. The physical and chemical parameters will be measured for each of these lakes both during open water and ice cover. The primary production will also be measured during the open water period. From this information qualitative and quantitative relationships between the chemical constituents of the water, climatic conditions, geological associations, morphology and biological production will be determined for the lakes under study.

The information gathered from this study is vital in determining if future land use changes effect the water quality. Another aspect of the study will determine if it is possible to predict the standing crop and efficiency of fish populations in a body of water by correlating the primary production with the physical and chemical parameters of the environment.

1.68

South Dakota State College of Agriculture
and Mechanic Arts, Agricultural Experiment Station, Brookings, South Dakota
ESTABLISHMENT OF TREE PLANTINGS TO ENHANCE RECREATION POTENTIAL OF SELECTED SITES
Paul E. Collins
Supported by U.S. Department of Agriculture

1. To determine the relationship between selected site factors and the survival and growth of trees in the Missouri River Lake areas of South Dakota.
2. To ascertain the effect of certain cultural practices on the growth and survival of newly planted trees in this region.
3. To study the influence of several site preparation methods on the success of tree planting in the Lakes Region.
4. To evaluate the suitability of various species and planting designs in achieving a desirable forest recreational environment.

An intensive survey of tree plantings already established in the Lakes Region will be made. New plantings scheduled for the spring of 1964 by the Corps of Engineers will be studied closely in terms of survival, growth, site preparation, irrigation, and fertilization. Intensive soil moisture studies are planned.

1.69

Tennessee Valley Authority, Knoxville, Tennessee
LIFE HISTORY STUDIES ON ARTIFICIALLY PRODUCED BROODS OF FLOODWATER MOSQUITOES IN THE TENNESSEE VALLEY
Samuel G. Breeland
Supported by Tennessee Valley Authority

The principle objective of this study is to investigate factors in the life history of a natural population of floodwater mosquitoes which are ultimately important in the control of the species involved.

A river bottom experimental "pond" (in reality a massive mosquito egg bed) near Wilson Dam, Alabama, subject to intermittent inundation by rainfall and/or river overflow, is artifically flooded by pumping water from the adjacent Tennessee River during each month of the mosquito breeding season, May through November. The resulting broods of mosquitoes are studied with particular attention being given to habitat requirements, species composition, hatching rates, and developmental time. Sand-box type frames, constituting 8 test plots of 96 square feet each, represent habitat and contour differences within the pond. Information on whether a species has single or multiple seasonal broods is obtained by screening half the plots to prevent reoviposition during the adult flight period of each brood.

Corollary insectary and laboratory studies on isolated specimens of several species are expected to yield important data, for use within TVA and elsewhere, on longevity, viability, fecundity, embryonic development, etc., which will serve as a baseline for measuring the effectiveness of various types of control, particularly those affecting reproductive physiology, e.g., chemosterility.

1.70

Texas Parks and Wildlife Department, Austin, Texas
PUBLIC ACCESS SURVEY OF PUBLIC WATERS
Dwane Q. Smith
Supported by U.S. Department of The Interior

Objectives:

1. To locate existing points of public access to public streams and lakes.
2. To locate other points of access where public ownership of land exists.
3. To catalogue, evaluate, and map existing and possible access points to public lakes and streams.
4. To publish information collected in the Inland Fisheries Series.

Despite the relative abundance of lakes and streams in Region 2-A, the amount of fisherman access to these waters is unknown. This investigation is proposed to determine the amount and location of fisherman access available at the present time, as well as the amount and location of access which is needed.

Procedures:

1. All points of access to public lakes and streams will be physically checked to determine their availability to the fisherman.
2. Special records will be made of publically owned rights-of-way where access to fishable, public waters is not now available to the fishing public. This information may be used to make recommendations to county and state agencies for the purpose of providing the right of free public access to public waters at all road crossings where the right-of-way is owned by public agencies.
3. All information and data will be recorded, catalogued, and mapped by county. This will be done with the help and assistance of game wardens and conservation chiefs of the Texas Parks and Wildlife Department for the concerned counties and areas. Information called for on the attached form will be recorded for each site investigated.
4. Upon completion of the survey, the accumulated information will be published as a bulletin in the Inland Fisheries Series.

1.71

Texas A. and M. College, Agricultural Experiment Station, College Station, Texas
DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS
A. B. Wooten
Supported by U. S. Department of Agriculture

Objectives: I. (a) To evaluate alternative intensities of agricultural land use for on-farm commercial recreation in terms of on-farm cost-benefits and to determine its potential effects on over-all farm incomes; (b) To estimate total man days of recreation available on the farm; (c) To develop guides for the use of landowners in developing agricultural land for recreational purposes.

II. To estimate total additional man days of recreation available in the area.

An attempt will be made to classify the commercial recreational operations into the following categories using as the criteria the leasing or contractual agreements (1) Day fishing; (2) Yearly fishing lease; (3) Club-lake; (4) Day Hunting; (5) Seasonal lease; (6) Shooting resort.

A random sample stratified according to the preceding categories will be taken and analyzed to determine: I. Acres of land devoted to recreation facilities; II. Kinds and cost of facilities; III. Kind and quality of labor required for operation under different systems; IV. Costs of stocking and maintaining fish and game; and V. Annual returns from operation.

Alternative systems of operation will be compared to establish guides for maximum profit from the land utilized and recreational facilities constructed.

An attempt will be made to establish a logical method of estimating the "human" carrying capacity or recreational man days available on a given acreage utilizing such variables as water area, fish and wildlife density and timber density

1.72

Stephen F. Austin State College, Nacogdoches, Texas
AVAILABILITY OF PRIVATE LAND FOR PUBLIC HUNTING IN ANGELINA COUNTY, TEXAS
Thomas J. Wood
Supported by Stephen F. Austin State College

The problem is to determine availability of privately-owned land in Angelina County, Texas, for public hunting. The scope of the problem includes completely open land, posted and closed land, and land that is posted but open under certain conditions to individuals. Socio-economic aspects are also investigated to determine whether or not these factors influence landowners policy.

County tax records were used to determine class of ownership. Questionnaires were mailed to large and small individual private landowners. Personal interviews are conducted with responsible officials of forest industries concerning policy on company-owned land.

This project will furnish thesis material for master of forestry degree at Stephen F. Austin State College. It started in September 1965 and is expected to be completed by September 1966.

1.73

Utah State University, Agricultural Experiment Station, Logan, Utah
IMPACT OF RECREATIONISTS ON SELECTED SITES
S. R. Tocher
Supported by State of Utah

Objectives:
1. Establish initial impact of recreationists on vegetation and soils on previously unused sites.
2. Relate changes in low level vegetation to treatment by irrigation and fertilization, amount of use, and site factors.
3. Study responses of growth rate of overstory trees in camp to paired trees outside camp.

Description of the work:
27 0.064 acre plots have been laid out, mapped and measured. Treatment effectiveness will be tested by vegetation responses and changes in rates of infiltration.

Selected plots will be irrigated and fertilized. Regressions analysis will relate vegetation to use, facility location and site factors.

1.74

Utah State University, Agricultural Experiment Station, Logan, Utah
CHANGES IN CAMPGROUND VEGETATION AND SOILS
S. R. Tocher
Supported by State of Utah

Management treatments will be applied to campsite plots. These will consist of (a) water, (b) fertilizer, (c) combination water and fertilizer, and (d) control. The amount and changes in understory vegetation of the campgrounds will be related to these treatments, to the amount of visitor use, and to the site factors such as soil texture and structure, competition from nearby trees, and topography.

Changes are to be related to treatments, visitor use, and site variables by multiple regression methods.

At each of 27 family camp units, a .064-acre plot has been established. This plot coincides with the area expected to receive the heaviest impact, thus vegetation changes due to recreation use should occur within the boundries of the plots. Within the .064-acre plot, 16 circular mil-acre plots have been established for the measurement of understory vegetation. Within the .064-acre plots trees have been selected for measurement of radial growth by dial-gauge microdendrometer methods.

1.75

Intermountain Forest and Range Experiment Station, U. S. D. A.
PLANNING AND DEVELOPMENT OF RECREATION USE AND THE MANAGEMENT AND REHABILITATION OF RECREATION AREAS IN THE INTERMOUNTAIN AND NORTHERN REGIONS
Roscoe B. Herrington
Supported by U. S. Department of Agriculture

Object: To develop ways to identify , measure, and evaluate the recreation potential of forest land; to establish criteria to plan recreation on a multiple-use complex; to analyze alternatives and concepts of forest recreation development; and to determine the impacts of recreation use upon wild lands, and management measures required to maintain or restore heavily used recreation areas.

Plan of Work: (I) Various techniques to inventory and evaluate recreational fishing and wildlife resources of the North Slope of the Uinta Mountains are under study, with emphasis on aerial photographic measurement of fisheries. A series of alternative plans for use of this recreational resource will be developed. (II) Various elements that constitute a recreational plan will be investigated and attempt made to integrate additional research information describing the resource, the problem, and the demands into a planning concept for recreation. (III) Various techniques will be tested to control, restrict, and guide human movement within the camp and picnic areas in order to devise ways to keep people from destroying the more fragile aspects of any recreation site. (IV) Study will be made of the human carrying capacity of various forest recreation sites, and increase in carrying capacity through site improvement techniques such as adding soil nutrients, providing additional water, soil stabilization, constructing permanent walkways, and introducing impact-resistant plant species.

1.76

Ogden, Utah
FOREST ECOSYSTEM MANAGEMENT AND PROTECTION IN THE NORTHERN ROCKY MOUNTAIN AND INTERMOUNTAIN REGIONS
Unknown
Supported by U. S. Department of Agriculture

Object: To develop broad comprehensive ecological hypotheses and theory of the establishment, development, and maintenance of forest ecosystems based on other research results; to appraise critical problems now faced by land administrators in multiple use management but which are not covered by present research programs; and to assemble, evaluate, and synthesize available results into guides for administrative use, and identify needed research.

Plan of work: Studies will be made of: silvicultural systems for management of lodgepole pine forest associations in light of insect and disease problems, reduction of wildfire and possible use of prescribed burning, and multiple use requirements for timber production, watershed protection, aesthetic and recreational needs, and wildlife habitat; silvicultural systems to produce and maintain aesthetically pleasing landscapes in major forest types of the Northern Rocky Mountain and Intermountain regions; multiple use silviculture for water and travel influence zones in major forest types of the Northern Rocky Mountain and Intermountain regions; and silvicultural systems for aspen forest associations in light of multiple use requirements.

1.77

Virginia Polytechnic Institute
Agricultural Experiment Station
Blacksburg, Virginia
EVALUATION OF LAND-USE PATTERNS IN EXPANDING METROPOLITAN REGIONS
Howard A. Clonts
Supported by U. S. Department of Agriculture

(1) To define and appraise the need for open space area preservation in expanding metropolitan regions; (2) To determine if low-intensity land uses (farming, outdoor recreation, watershed protection, forestry) can complement open space preservation in urban expansion without creating excessive urban sprawl; (3) To ascertain the relationship between land use control measures and (a) ownership and development rights in land, (b) land values, (c) variety and amenities in land use, and (d) the local tax base for public services; (4) To determine how artificial scarcities of urban land arising from low density restrictions affect the quality and efficiency of resource use in metropolitan regions.

Description: Enterprise budgets will be prepared for selected farm enterprises. Through a thorough budgetary analysis, feasible resource uses will be determined. Where necessary for a more complete analysis, additional data on typical resource situations will be enumerated. Objectives 3 and 4 will require the development of a model to explain the effect of density restrictions on the quality and efficiency of resource use, the selection of appropriate statistical techniques to measure the effects, and the enumeration of data on selected variables for the analysis.

1.78

University of Washington, Seattle, Washington
RELATION OF VARIED RECREATIONAL USES OF FOREST LANDS TO THEIR MANAGEMENT FOR TIMBER PRODUCTION IN WESTERN WASHINGTON
C. Frank Brockman
Supported by U. S. Department of Agriculture

Objectives: Investigation of the compatibility and/or conflicts between: (1) relationships of the nature of public recreational uses and facilities to deterioration of recreational interests. (2) different recreational uses of forest lands, (3) various recreational uses of forest lands with different silvicultural systems and current logging practices, and (4) study of methods of minimizing or eliminating conflicts between recreational use and timber production with a view to perpetuating maximum esthetic, cultural and economic returns.

Description of work proposed: The complexity of recreational research, together with the variety of information necessary to conclusions relating to the broad overall objective of this project, necessitates specific attention to various pertinent limited objectives as qualified workers are available. It is intended, first, to (1) measure relative increase of land values due to forest recreation focal points (lakes, streams, ski areas etc.) on forest lands and, based on trends and impact indicated from these data, develop a theoretical model for simulating recreation value implications in forest management and (2) determine, through ecological analysis of vegetative associations (using series of quadrats and/or transects) the impact of public use on various types of recreational areas.

1.79

West Virginia University, Agricultural Experiment Station, Morgantown, West Virginia
FOREST FIRE PREVENTION THROUGH PUBLIC INTEREST IN GAME
Robert L. Smith
Supported by U. S. Department of Agriculture

Objective: Measure changes in attitudes toward and interests in land of a hunting group actively cooperating with coal company owners, during a game management program on coal company lands. Determine effect of a cooperative wildlife habitat improvement program on game population in the area.

Description of Work: Cover map the area. Development of management plan for land under lease to hunting club. Direct habitat improvement work on land by club members. Develop questionnaires to attempt to measure attitude changes toward land and game by hunting public. Study vegetation and game populations on area, particularly as both are affected by forest fires and activities of local populations.

1.80

Laramie, Wyoming
MANAGEMENT OF MOUNTAIN RANGELANDS WITH EMPHASIS ON ALPINE AND SUBALPINE TYPES
W. M. Johnson
Supported by U. S. Department of Agriculture

Object: To determine ecological relationships and forage values of alpine and subalpine plants; to devise and evaluate range management practices adapted to high-altitude ranges; and to determine how best to harmonize livestock grazing with wildlife, recreational use, and watershed values.

Plan of work: Studies will be made of (1) growth, production, and nutrient quality of key forage species on high-altitude ranges; (2) the development of a vegetative key to the sedges of Wyoming; (3) the taxonomy and ecology of alpine relict areas in Wyoming; (4) two grazing intensities and season long summer grazing on vegetation and steer weight gains on Idaho fescue grassland range in Wyoming; (5) deferred-rotation cattle grazing; (6) the effect of deferrment of grazing on vegetation responses on chemically controlled sagebrush ranges; (7) relation of forage production, utilization, and digestibility to weight gains of sheep; (8) phenology, production, nutritive value, and utilization of common high altitude species, and the association and succession of plants; (9) effects of micro- and macro-climate, topography, soils, and other site factors on the development and productivity of important alpine plants; (10) effect of intensity and season of sheep grazing on alpine range and watershed conditions; (11) response of vegetation and sheep to different systems of grazing alpine range; and (12) forage preference and use by sheep, game, and rodents on high-altitude ranges.

2. USER STUDIES

2.1

Alabama Department of Conservation, Montgomery, Alabama
STUDY OF THE ALABAMA DEER HUNTER
Francis X. Lueth
Supported by U.S. Department of the Interior

The purpose of this job is to study the hunting habits and preferences of the Alabama deer hunter. Standardized forms will be used to collect data on the number of hunters per hunt, number of dogs, approximate acreage hunted, weather conditions and harvest. Each form will cover a day's hunting activity. The data collected will be analyzed to determine, if possible, which factors affect the harvest. In addition, seasonal club kill records are available for a number of clubs over a period of years. These will be continued as an index of changes in total harvest.

The data will be collected statewide during the hunting and post hunting seasons by the Study Leader, District Biologists and Conservation Officers. Results will be presented in the Federal Aid annual report.

2.2

University of Connecticut, Agricultural Experiment Station, Storrs, Connecticut
CONSUMER ANALYSIS FOR SPECIFIC FOREST RECREATIONAL ACTIVITIES IN THE NORTHEAST
Walter C. McKain
Supported by U. S. Department of Agriculture

Objectives:
1. To identify and analyze those social, psychological and economic variables which motivate consumers to participate in outdoor recreational activities.
Work Proposed: By means of library research and correspondence an inventory of relevant research and a classification of hikers will be developed. Mailed questionnaires and personal interviews will be used to obtain information regarding hikers and hiking clubs in New England (characteristics of members, areas of activity, etc.). On the basis of this information, hypotheses regarding the motivation of the participants will be set forth and tested by means of interviews in depth using such standardized measures as are applicable. The findings of this research will be utilized in the preparation of guidelines for the orderly development of hiking as a form of outdoor recreation in New England.

2.3

Bureau of Outdoor Recreation, U. S. D. I.
Washington, D. C. 20240
THE 1965 NATIONAL RECREATION SURVEY
Charles C. Morrison, Jr.
Supported by U. S. Department of the Interior

The 1965 National Recreation Survey was conducted by the Bureau of the Census during the first two weeks of September 1965. The approximately 8,000 sample persons who were interviewed in their homes in 333 primary sampling units throughout the country were selected from a group that had been rotated from the sample used for the August Current Population Survey. The purposes of the survey were similar to those of the 1960-1961 National Recreation Survey, the results of which appear in Study Report 19 of the Outdoor Recreation Resources Review Commission. In 1965, however, participation in various outdoor recreation activities was measured (in "activity day" units) primarily with reference to vacations, other overnight recreation trips, and outings taken in the three summer months whereas in 1960-1961 the survey was repeated four times, to cover each quarter of the year, but with a sample of only 4,000 persons each time. The 1965 interview schedule included questions on activity preferences and facility constraints. And it did achieve a rough measure of fall, winter, and spring participation that should provide some basis for trend evaluation. A major departure from the earlier format involved the elimination of trip expenditure questions and of the section of the schedule that dealt with leisure time; it was felt that this information should be developed through other surveys in which better techniques, requiring more interview time, could be used. All participation, trip, and preference results will be cross-tabulated against various socio-economic characteristics of each respondent; this will provide a basis for determining the nature of the influence of these characteristics on variations in data intensity. A preliminary report on the project is expected to be available in the Fall of 1966.

2.4

Bureau of Outdoor Recreation, U. S. D. I.,
Washington, D. C. 20240
INTERIM METHOD FOR PROJECTING RECREATION USE
Robert J. Lavell
Supported by U. S. Department of the Interior

The project was undertaken to put the many projections the Bureau of Outdoor Recreation has to make for river basins on a more comparable basis. Appropriate factors from tables representing the effect on participation of income, education and age of the population within about an hour and a half drive of the main river course are used to estimate current use. Participation is then projected to the target date on the basis of projected population changes and projected changes in population characteristics.

A more realistic model will be developed when more up-to-date and more detailed information on outdoor recreation participation is available in the fall of 1966.

2.5

University of Delaware, Agricultural Experiment Station, Newark, Delaware
DEMAND FOR OUTDOOR RECREATION FACILITIES IN THE PHILADELPHIA-BALTIMORE-WASHINGTON D. C. REGION
Gerald L. Cole
Supported by U. S. Department of Agriculture

Objectives:
1. To estimate the demand for outdoor recreation facilities by consumers in the Philadelphia-Baltimore-Washington D. C. Metropolitan Region.
2. To measure the market potential for natural and human resources in agriculture as evidenced by the demand for outdoor recreation facilities in Delaware and the region.
3. To provide criteria which will aid public policy makers and public administrators in making decisions concerning the establishment of outdoor recreational facilities on farms in Delaware and the region.

Description of Work: A cross-sectional consumer survey will be made of about 2000 households in the Balto-Phila-Wash. metropolitan area. Data which will be obtained on socio-economic characteristics of families and their patterns of use of outdoor recreation facilities will be analyzed to derive demand equation which will be interjected in terms of their policy implications.

2.6

University of Delaware, Agricultural Experiment Station, Newark, Delaware
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST
G. L. Cole
Supported by U. S. Department of Agriculture

Objectives: (1) To identify and analyze those social, psychological and economic variables which motivate consumers to participate in outdoor recreational activities, (2) To ascertain and evaluate consumer satisfaction with locational and environmental factors as they relate to consumption patterns, (3) To identify and analyze the reactions of participants to rules and regulations, physical facilities, social activities and off-site accessory attractants, and (4) To identify and analyze the expenditures incurred by those who actively participate in outdoor recreational activities.

Description of Work Proposed:
Copies of the camping questionnaire developed by the Regional Technical Committee will be administered by the hand-out technique to approximately 500 campers in Delaware's private and public campgrounds largely in coastal areas. Data from the questionnaires will be analyzed and incorporated into the regional study. Important comparisons include differences in characteristics of campers who seek areas near the ocean versus those who camp in a mountain environment.

2.7

Game and Fresh Water Fish Commission, Tallahassee, Florida
SPORTSMAN'S OPINION SURVEY
F. K. Jones
Supported by U. S. Department of the Interior

Objective: To measure and evaluate statewide and sectional sportsman's opinions.

Procedures: Opinion data collected under other job mail questionnaires will be analyzed and evaluated. Particular interest will be placed on current controversial issues and on proposed or desirable regulatory changes. Opinion questions to be studied in the current segment are not yet determined.

2.8

Game and Fresh Water Fish Commission,
Tallahassee, Florida
HUNTER MOVEMENT
F. K. Jones
Supported by U. S. Department of the Interior

Objective: To determine the county of residence of the hunters checked on the management areas.

Procedures: The random roadblock form used by hunt personnel to record the license numbers of hunters checked will be revised. The revised form will include date, license number, county of residence and management area or county in which checked. There will be increased emphasis on the use of this form on management areas.

2.9

University of Georgia
Agricultural Experiment Station
Athens, Georgia
PERFORMANCE TRAITS OF FOREST RECREATIONISTS: A BEHAVIORAL STUDY
William T. Moss
Supported by State of Georgia

1. To analyze behavioral patterns of forest recreationists in consideration of their cultural, social, educational, and economic backgrounds.
2. To develop recommendations for the adaptation of national and state forest facilities and services to better cope with the nature of the recreational users of the forest.
3. To recommend methods which would enhance the recreational usage of forest areas for both native and transient recreationists.

This study is directed to examine possible correlations among characteristics of the personal or family background and various manifestations of respect for the land. Analysis of recreational performance traits of forest users, along with background statistics, should provide information of value in planning for further development of forest facilities for recreational use and any modification of VIS programs and other state and local media to better educate the forest-using public. The ultimate aim of the study is the gathering of data which will allow the forest manager to understand, predict, and to some measure control the recreational usage of the forest.

2.10

University of Kentucky, Lexington, Kentucky
PLANS AND EXPECTATIONS FOR OLD AGE
E. Grant Youmans
Supported by University of Kentucky

The aim of this project is to assess the plans and expectations middle-aged rural Kentuckians have for old age. Personal interviews were made with an area probability sample of 203 men and women aged 45-60 living in a rural county of Kentucky. Data were collected by means of a structured schedule on plans and expectations for health and health care, for retirement and economic support, for housing, and for use of leisure time in old age.

2.11

Louisiana State University, Baton Rouge,
Louisiana 70803
THE EFFECT OF STATE FORESTS AND PARKS ON PUBLIC RECREATIONAL USE OF PRIVATE FORESTS IN LOUISIANA
R. W. Mc Dermid
Supported by U. S. Department of Agriculture

Objectives: To determine if further development of State forests and parks will alleviate public demands for outdoor recreation now being made on private forest lands in Louisiana.

The study is designed to develop the following information: Who the visitors to these facilities are, and their places of residence; how long they stay and what they use while at these recreation areas. It will evaluate the carrying capacity of existing recreation areas and the potential capacity of undeveloped areas. Thus recommendations can be made as to the need for additional public recreation areas and the size of these areas. In addition the study will appraise the economic effect of these visits by analyzing visitor expenditures for recreation equipment and supplies.

Personal interviews will be conducted among the recreation area users during peak and off-peak seasons. Traffic counters will help determine man-hours of use, number of visits, and peak loads. Weather data, day of week, and facilities used will be correlated with peak loads to determine their relationships, if any. Frequency distributions of responses will be analyzed by Chi-square to determine statistical significance Isolated variables affecting areas and users will be analyzed statistically.

2.12

University of Maine, Agricultural Experiment Station, Orono, Maine
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST
T. J. Corcoran
Supported by U. S. Department of Agriculture

1. To identify and analyze those social, psychological and economic variables which motivate consumers to participate in outdoor recreational activities.
2. To ascertain and evaluate consumer satisfaction with locational and environmental factors as they relate to consumption patterns.
3. To identify and analyze the reactions of participants to rules and regulations, physical facilities, social activities, and off-site accessory attractants.
4. To identify and analyze the expenditures incurred by those who actively participate in outdoor recreational activities.

By means of mail question survey of a random sample of hunting and fishing license holders in Maine, information on consumer characteristics, satisfaction with locational and environmental factors, reactions to regulations and facilities, and expenditures will be collected, analyzed, and interpreted.

2.13

University of Massachusetts, Agricultural Experiment Station, Amherst, Massachusetts
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST
R. S. Bond
Supported by U. S. Department of Agriculture

Objectives:

1. To identify and analyze those social, psychological and economic variables which motivate consumers to participate in hunting and fishing.
2. To ascertain and evaluate consumer satisfaction with locational and environmental factors as they relate to consumption patterns.
3. To identify and analyze the reactions of participants to rules and regulations, physical facilities, social activities, and off-site accessory attractants.
4. To identify and analyze expenditures incurred by those who actively participate in fishing and hunting activities.

Procedures: Using the procedures and questionnaires designed by the Regional Technical Committee, sample fishing and hunting license holders by mail to gather information to satisfy the objectives. Use a personal interview of respondents and non-respondents to obtain more depth and to verify mail data. Collect data so as to recognize ecological units of participation. Compare variables by analysis.

2.14

Massachusetts Division of Fisheries and Game
Westboro, Massachusetts
DETERMINATION OF DEER HUNTING PRESSURE IN MASSACHUSETTS
James J. McDonough
Supported by U. S. Department of the Interior

Objectives:
1. To determine the number of deer hunters
2. To determine distribution of hunting pressure throughout the state
3. To determine how far the average deer hunter travels to hunt.
4. To determine how much time the average deer hunter spends hunting (daily and seasonal).
5. To determine what method the average hunter uses in hunting deer
6. To determine other factors about the average deer hunter such as age, number of successful years, preference for size or sex of deer, etc.
7. To determine if the following factors affect the average hunter: weather, wife and family, potential danger, finances, etc.
8. To determine the amount the average deer hunter spends for deer hunting.

Procedures: The bulk of information will be obtained by using a postal survey on known deer hunters both successful and unsuccessful. Also, personal interviews will be made at checking stations.

2.15

Massachusetts Division of Fisheries and Game
Westboro, Massachusetts
UTILIZATION OF WILDLIFE MANAGEMENT AREAS
George F. Pushee, Jr.
Supported by U. S. Department of the Interior

Objectives: 1. To determine the hunting pressures on wildlife management areas. 2. To determine multiple use of wildlife management areas by the general public.

Procedures: 1. Both roving and permanent checking stations will be used to determine the number of hunters. Counts will be made on days of peak usage. Cars will be counted to obtain a figure which can be multiplied by the average party size to give the final total of hunters. Whenever possible, hunters will be contacted to determine such facts as distance traveled to hunt, time spent on the area, hunting success, opinion of the area, etc. The above procedure will be satisfactory on the more popular areas which are regularly stocked with pheasants. On the more remote forest game areas, boxes will be erected containing report cards to be used on a voluntary basis for the collection of the above data.
(2) Multiple use of management areas will be checked throughout the year other than during the hunting season. This will be accomplished by establishing a schedule of randomly selected days which will include both weekdays and weekends. In addition to an actual count, personal contacts will be made to determine the use, etc. On the remote areas, voluntary report stations will be established.

2.16

University of Michigan
Ann Arbor, Michigan 48104
AN ANALYSIS OF THE FACTORS WHICH INFLUENCE THE LENGTH OF STAY OF CAMPERS IN THE WATERLOO RECREATION AREA OF MICHIGAN
Daniel Talhelm
Supported by University of Michigan

A study of factors affecting who goes camping, their length of stay, and other information on the socioeconomic characteristics of campers. A case study of a state recreation area in southern Michigan.

2.17

University of Michigan
Ann Arbor, Michigan 48104
FACTORS INFLUENCING CAMPGROUND AND CAMPSITE SELECTION
Gene P. Schaaf
Supported by University of Michigan

To determine the factors governing the reason or reasons why a camping family picks a particular site in a campground. The campground selected has a variety of sites on and back from a lake, in shade and in the open, near and removed from improvements. The campground selected seldom fills, offering the visitor a wide choice. Factors were correlated with equipment, travel distance, number and age of party members, etc.

2.18

University of Michigan, Ann Arbor, Michigan 48104
THE AWAKENING OF LEISURE
Floyd Newby
Supported by University of Michigan

An historical analysis of changing leisure concepts through the Industrial Revolution in America. A case study of the United Auto Workers in Michigan and the sequential change of their concept of leisure.

2.19

University of Michigan,
Ann Arbor, Michigan 48104
THE EFFECT OF MEMBERSHIP IN PRIVATE RECREATION CLUBS AND MEMBERSHIP USE OF PUBLIC RECREATION LANDS
Alan Everson
Supported by University of Michigan

A study to determine the summer use of public recreation lands before and after membership in an outdoor recreation club. A case study of the membership of The Huron Valley Swim Club of Ann Arbor, Michigan.

2.20

University of Michigan
Ann Arbor, Michigan 48104
ANALYSIS OF FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES
G. R. Gregory
Supported by State of Michigan

A study which intends to develop and test techniques for determining the relative importance attached to various features of forest recreation sites by users and to derive an "index of attractiveness" which will permit comparing the relative drawing power of such sites.

2.21

Michigan State University, Agricultural Experiment Station, East Lansing, Michigan
FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES
G. R. Gregory
Supported by U. S. Department Of Agriculture

Objectives: To develop and test techniques for determining the relative importance attached to various features of forest recreation sites by users.

Methods: Data concerning factors that might attract or repel visitors to forest recreation sites will be obtained from maps, available written descriptions, and by personal visit, for State Parks and Forest Service campgrounds, etc. This information will be combined with that of number of visitors, etc., and subjected to multivariate analysis perhaps to factor analysis.

2.22

Michigan Department of Conservation
Lansing, Michigan 48926
HUNTER ATTITUDE SURVEYS
Lawrence A. Ryel
Supported by U. S. Department of the Interior

Objectives: To conduct mail and/or interview surveys to determine hunters' attitudes concerning various aspects of hunting.

Procedure: Obtain a statistically adequate sample of licensees from license application files and obtain at least a 90 percent response rate by mail questionnaire or personal interview.

Relatively simple questions will probably be handled through mail contact while more complex situations can best be evaluated through personal interviews. In the case of interview surveys, questionnaire designs and interview training will be accomplished in cooperation with a competent survey agency such as the Survey Research Center at the University of Michigan.

Activity on this job will depend on current need for such surveys, particularly in connection with any-deer seasons. It is expected that a mail survey of about 1,200 deer hunters concerning preferences for season opening date, and deer seen while hunting will be conducted. Additional deer hunter surveys may be needed depending on final deer hunting regulations. Samples of small game hunters may be interviewed to determine their preference for various types of seasons or regulations and their behavior in certain hunting situations.

2.23

Michigan Department of Conservation
Lansing, Michigan 48926
EVALUATION OF PUBLIC USE OF STATE GAME AREAS IN SOUTHERN MICHIGAN
C. T. Black
Supported by U. S. Department of the Interior

Objectives: To evaluate our progress in wildlife restoration on the state game areas in southern Michigan; to determine the extent of non-hunting use of these areas; and to determine what the Michigan public wants from these areas.

Procedures: Conduct sample bag checks by interview, postcards placed on parked automobiles, and sample counts of cars and hunters; compute game harvests, gun pressure, and hunter use; make sample counts of human use at other seasons of the year to determine non-hunting use; interview hunters and others to determine what they want and expect from such lands, and what brings them onto the state lands.

2.24

University of Minnesota, Minneapolis, Minnesota
SOME ECONOMIC IMPLICATIONS OF THE MANAGEMENT OF ITASCA STATE PARK TO MEET RECREATIONAL OBJECTIVES
Henry L. Hansen
Supported by U. S. Department of Agriculture

Objectives:
1. To define (through investigation of the historical and ecological evidence) the characteristics of the Itasca vegetation in the mid-1800's prior to the commencement of logging, its characteristics at the time of logging cessation (in the early 1900's), and its present characteristics (1960's) under conditions of protection-management.
2. To determine what changes will take place with time in the park forests as a result of ecological succession under the present protection-management policy.
3. To investigate the possibilities of manipulating the vegetation (including the use of controlled fire, tree cutting, tree planting, and herbicides) to recreate the forest cover situation of the mid-1800's.
4. To evaluate (a) preference and reactions of recreational users of Itasca to proposed manipulations and (2) the administrative problems posed by such manipulations in an effort to define the desirability and the feasibility of specified management activities.
5. The integration and evaluation of the research data as it pertains to management recommendations (including zoning, control burning, cutting, planting, herbicide application, and others) which could be implemented at Itasca or at other similar "wildland" recreational areas.

2.25

University of Missouri, Agricultural Experiment Station, Columbia, Missouri
DEMAND OF THE METROPOLITAN POPULATION IN MISSOURI FOR OUTDOOR RECREATION FACILITIES IN RURAL AREAS
Durward Brewer
Supported by U. S. Department of Agriculture

The objective of the research is to determine and identify the various demands for outdoor recreation with emphasis directed toward the marketability of farm resources and services. To determine and evaluate existing methods of sale and to develop alternative methods which utilize more completely the farm resource base for recreation purposes. To evaluate the factors which contribute to profitable merchandising of the use of rural farm areas relative to the leisure time-recreational demand pattern of the public.

Information will be obtained from urban population centers to determine the individual's participation in outdoor recreation and to facilitate the development of appropriate methods to determine the effects income, occupation, age, education, and other population characteristics have upon leisure time use. These factors will be used in determining space use intensity of various types of facilities in rural areas and measures will be made of the use intensity that would occur under varying conditions. These data will be correlated with secondary data on sales and services to determine the influential effects on present and potential demand for various types of recreational facilities located within given space context.

2.26

Midwest Research Institute, Kansas City, Missouri
PRESENT AND FUTURE DEMAND CALCULATION FOR OUTDOOR RECREATION IN THE STATE OF KANSAS
Joseph C. Horvath,
Supported by Urban Renewal Administration

Determine, analyze, evaluate and describe the demand for outdoor recreation in the State of Kansas, for the years 1960, 1965, 1970, 1980, 2000, and 2020. Demand will be expressed in 15 major outdoor recreation activities, by counties and by SMSA areas. The computerized analysis is based on 5 socio-economic characteristics enabling the disaggregation of the ORRRC National Recreation Surveys (1960 and 1965) for use on state level. The supply side of the Kansas Outdoor Recreation Plan has been made comparable for the calculation of need and/or idle capacity. The unmet demand need will be converted into land and water acreages required to meet demand, while idle capacity will be identified as well. Both will be expressed by major activities and facilities by counties in the State of Kansas.

The need analysis and conversion will be done by Kansas State personnel, with guidance and consultation to be extended by

Midwest Research Institute. The consulting phase will be conducted in Topeka, Kansas.

The whole demand and need analysis has been started and will be completed in FY 1966.

2.27

University of Nevada, Reno, Nevada
DEMAND FOR WATER BASED RECREATIONAL ACTIVITIES IN NEVADA
J. B. Wyckoff
Supported by U. S. Department of the Interior

This study will specifically determine:

a. Economic factors associated with participation in water based outdoor recreational activities in Nevada.

b. Qualitative factors associated with participation in and resultant satisfaction from water based recreational activities in Nevada.

c. Techniques for accurately appraising the total use of recreational facilities which are connected with water.

The relationship of the factors identified in objectives a and b to total participation in the various activities and to total use at various sites will be determined by multivariate analysis. Models will be developed to predict future needs for the various types and locations of water based recreational activities.

2.28

New Hampshire Fish and Game Department, Concord N. H.
MAIL QUESTIONNAIRE SURVEY EVALUATION OF HUNTING AND FISHING DEMANDS
H. C. Lacaillade
Supported by U. S. Department of the Interior

It was the purpose of this study to: (1) determine the recreational status of New Hampshire's fish and game resources as related to demand; (2) attune research and management programs more closely to current and anticipated demands upon the State's fish and wildlife resources.

An appraisal of demands made upon wildlife species sought after by sportsmen in New Hampshire will be accomplished by measurement of the number of times in which resident and non-resident license holders hunted and fished for various species during a specified time period. Mail questionnaires sent to a random sample of license holders listed under one of several license categories will request information as to the number of times that sportsmen sought each of the various game and freshwater fish species which occur in the state during 1964. Data received will authenticate not only which fish and game species provided the most sport to resident and non-resident enthusiasts but also which species contributed most to the economy of the Department and the State.

2.29

University of New Hampshire, Agricultural Experiment Station, Durham, New Hampshire
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST
Unknown
Supported by U. S. Department of Agriculture

Objectives:

1. To identify and analyze those social, psychological and economic variables which motivate consumers to participate in outdoor recreational activities.
2. To ascertain and evaluate consumer satisfaction with locational and environmental factors as they relate to consumption patterns.
3. To identify and analyze the reactions of participants to rules and regulations, physical facilities, social activities and off-site accessory attractants.
4. To identify and analyze the expenditures incurred by those who actively participate in outdoor recreational activities.

Procedure:

Participants in camping will be surveyed, by mail questionnaire and personal interview, isolating those consumer attributes related to participation in camping. Samples of participants will be drawn and questionnaires structured so that relevant ecological units may be analyzed. Analysis of the generated data will obtain numerical magnitudes of the influence which the variables have on participation rates, consumption patterns, reactions, and expenditures.

2.30

New Jersey Division of Fish and Game
Trenton, New Jersey
THE EVALUATION OF WILDLIFE UTILIZATION AND HUNTER SUCCESS
William E. Shoemaker
Supported by U. S. Department of the Interior

To record wildlife utilization on an annual basis and to determine the relation of this utilization to hunting success. To record area utilization by those other than hunters.

Wildlife utilization including production and hunter and non-hunter utilization will be recorded. Harvest data will also be recorded for managed and unmanaged areas on an annual basis. The number of hunters and others using the Colliers Mills tract will be recorded by the use of mechanical counters and direct observations.

2.31

New Mexico Department of Game and Fish,
Santa Fe, New Mexico
CREEL CENSUS AND USAGE STUDY OF CONCHAS LAKE
Ralph G. Little
Supported by U. S. Department of the Interior

Objective:

1. Determine recreational use.
2. Determine fishing pressure.
3. Determine angler success.

Procedures:

1. a. Place vehicle counters across roads at Conchas Lake.
   b. Make random visual observations at each counter to determine load factors and axles per unit for extrapolation to total usage.
   c. Make weekly tours through parking, camping and recreation areas to determine origins of traffic from license places (residents by county and non-residents by state).
   d. Make random sample interviews in parking, camping and recreation areas to determine types of recreational activities to include (1) fishing, (2) boating, (3) swimming, (4) water skiing, and (5) picnicking and sightseeing. Duration of trip will also be determined.
2. From attendance counts, breakdown of activities, days per trip, and creel census interview data-determinations of man-trips, man-days, and man-hours per day of fishing will be determined.
3. a. A new creel census form will be used.
   b. Hours will be determined to the nearest quarter hour.
   c. Average lengths and weights will be determined from measurements taken at random from fish in possession from every 10th angler.
   d. Data will be obtained from compilation of angler contacts.
   e. Anglers census will record anglers singularly instead of in parties.

2.32

New Mexico Department of Game and Fish
Sante Fe, New Mexico
CREEL CENSUS AND USAGE STUDIES ON UTE, LAKE VAN, AND CHICOSA LAKE:
James S. Harrison
Supported by U. S. Department of the Interior

Objectives: Determine recreational use, fishing pressure, and angler success of new waters.

Procedures: Creel censuses will be conducted at Ute Lake utilizing car counters and on-site interviews.

At Chicosa Lake and Lake Van procedures are different from Ute Lake as census data are available from special daily fishing permit stubs. Usage, other than fishing is known to be insignificant at Chicosa Lake and is based on a commercial park establishment at Lake Van.

Fishing pressure will be determined for all anglers 12 years of age or older by return of creel stub attached to a 50 cent permit sold at the concessionaire's stand for fishing privileges.

One day each month alternating from weekday and week-end day will be spent checking anglers under 12 years of age to determine daily, monthly, and yearly percent in comparison to those over 12 years of age buying a fishing permit.

Determine length of fishing day from interview with anglers under 12 years of age not required to have permit.

Data to be obtained and compiled from return of creel census stubs and on-site interviews will include all usual indices of fishing pressure, catch, catch-per-unit of effort.

2.33

New Mexico State University, Agricultural Experiment Station, University Park, New Mexico
RECREATIONAL VALUES OF WATER IN THE MAJOR RESERVOIRS OF NEW MEXICO
James R. Gray
Supported By New Mexico State University

Objectives: 1. To determine recreational demand schedules and demand price elasticities at Elephant Butte and Navajo reservoirs.
2. To measure the changes in demand schedules for the major recreational activities as reservoir levels change from one season to subsequent seasons.

Description of Work: Personal interview will be made to determine characteristics and expenditures of recreationists primarily engaged in boating, fishing and a combination of picnicking, camping and cabin living at Elephant Butte and Navajo reservoirs. When the reservoir levels change substantially from the period of the first set of interviews, a second set of interviews will be conducted. The analysis will consist of construction of demand schedules based on variable recreation costs, computation of demand price elasticities, and estimation of net values of water in the reservoirs based on changes in the two sets of demand schedules using a single equation model.

2.34

Cornell University, Agricultural Experiment Station, Ithaca, New York
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST
David Allee
Supported by U. S. Department of Agriculture

This project will; 1) relate participation to social, psychological and economic variables, 2) relate satisfaction as expressed in consumption patterns to environmental factors, 3) identify reactions to rules, facilities, activities and off-site attractants, 4) measure participant expenditures.

DESCRIPTION OF WORK - This will be accomplished for camping, hiking, hunting and fishing. Cornell will provide leadership in the development of questionnaires for the camping phase. A pilot survey of 28 campgrounds in New York and Pennsylvania will be used to extend the testing of survey techniques now under development by the U. S. Forest Service. Cornell will also participate in the field work and analysis in each of other phases now being developed by Massachusetts, West Virginia and Connecticut, and to be adopted by the Regional Technical Committee.

2.35

Asheville, North Carolina
MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST
T. H. Ripley
Supported by U. S. Department of Agriculture

Object: To develop ways to measure and predict recreation use, use impacts, and aesthetic values in forest environs; to determine carrying capacities for differing recreation uses; and develop guides for maximum recreational benefits.

Plan of work: Study will be made of (1) properties of developed camp and picnic sites and associated mass recreation uses, including overstory species composition and density; understory for developed site uses; layout and site rehabilitation; and user preference of type of tables, (2) measurement and prediction of recreation use on general forest areas and developed sites, including dispersed recreation; doubling sampling with pneumatic traffic counters; and user attributes, (3) improvement in hunting and fishing involving relations between unrestricted pressure, kill, and game resources; hunting and fishing uses and leasing (or free use) arrangements on large pulp and paper company holdings; and (4) carrying capacities of forests for recreation, involving hunter and fisherman pressure on streams and big game ranges in relation to enjoyment of the sport; quality of experience as related to fish and game populations, and these in turn to bag and creel successes; and similar studies.

2.36

Ohio Division of Wildlife, Olentangy Wildlife Experiment Station, Route #1, Ashley, Ohio
LEASED PUBLIC HUNTING AREA UTILIZATION BY PERMIT HOLDERS
Kenneth R. Russell
Supported by U.S. Department of the Interior

There are several tracts of land in Ohio owned by private industry which are available under administrative agreement as public hunting and fishing areas. Free permanent permits are issued to anyone requesting them as a partial measure of the use of these areas. However, it is not known how many of these permit recipients actually utilize the permits, how frequently and for what principal purposes.

The ultimate purpose of this study is to permit an accurate understanding of the role of industrial lands in providing hunting and fishing recreation in Ohio. The secondary purpose is to evaluate the potential of the telephone interview as a survey technique in Ohio's wildlife program.

A random sample of names will be drawn from the list of permit holders as of December 31, 1964. Each person selected will be subjected to a brief telephone interview by the local game protector. Questions posed during the interview will pertain to the frequency of use, seasons of use, purposes of use and hunting or fishing success experienced on the lands under study.

2.37

Ohio Division of Wildlife, Olentangy Wildlife Experiment Station, Route #1, Ashley, Ohio
PUBLIC HUNTING AREA UTILIZATION SURVEY
Kenneth R. Russell
Supported by U.S. Department of the Interior

The present uses of and needs for public hunting areas are not sufficiently known to permit evaluation of their present role in the Ohio hunting picture, nor planning for their future procurement, location and management. Quantitative data are needed to assess the effect of public hunting area management practices and to determine the need for their existence with particular reference to numbers, distribution, size, purpose and the hunter groups that they serve.

The objectives are to measure the utilization of public hunting areas in Ohio and establish why some hunters do and others do not use them.

Data will be collected from a randomly selected and statistically adequate sample of current hunting license buyers stratified by county according to average annual hunting license sales. A questionnaire will be mailed to the selected license buyers in late January 1965 and a total of three mailings will be made. The questionnaire will be designed to permit statistical analysis and to be psychologically objective.

2.38

Ohio Department of Natural Resources, Columbus, Ohio 43212
ANALYSIS OF THE CHARACTERISTICS AND DISTRIBUTION OF THE OHIO FISHERMAN POPULATION
John N. Reis
Supported by U.S. Department of the Interior

The objective is to determine the characteristics of the fisherman population in Ohio as a basis for sound administration of fish management programs and expenditures. This information is being obtained through a Fisherman Questionnaire mailed to one percent sample of Ohio resident anglers. The system consists of seven mailings, alternately with and without a questionnaire, to obtain as great a response as possible by mail. A personal interview follow-up will be made from a sample of nonrespondents in order to evaluate this segment of the population. The questionnaire has been designed for processing by IBM computer. Tabulation of the data will supply information such as angler age composition, utilization of fishing sites, species and seasonal preferences of anglers, and sociological aspects. Some relationships such as family size to desire for convenience facilities, fishing success to attitudes, and types of fishing water preferred to types utilized will be analyzed.

2.39

Department of Wildlife Conservation
Oklahoma City, Oklahoma
EVALUATION OF UTILIZATION OF OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION LAKES FOR FISHING AND RECREATION
Leland E. Roberts
Supported by U. S. Department of the Interior

1) A statistically reliable creel survey was developed (forwarded to Regional Office, November 1964) and has been in operation at Department lakes since December 1964. Data will continue to be taken through December 1965, to furnish information on fishing pressure, yields, catch rates, composition of the catch, characteristics of the fishery, and the ratio of fishing to other recreational activities at the lake; 2) the creel survey data will be placed on punch cards and processed by machine methods and/or computors; 3) field forms and data processing forms and techniques are designed together to insure efficient data processing and analysis. Calculations will be similar to that given by Lambou (1959); 4) access to the Department lakes is provided at one to three points per lake. One part-time creel checker will be employed for each lake. Creel survey road blocks will be conducted during one morning and one evening period during the weekdays, and one morning and one evening period during the weekend and holidays. These periods are chosen by a random design.

2.40

Oklahoma State University, Stillwater, Oklahoma
DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED
Daniel D. Badger
Supported by Oklahoma State University

Rising incomes, more leisure time and shifts in population have combined to increase the demand for Oklahoma land and water resources for recreation. Many facilities being used for recreational purposes were developed primarily for other uses, such as flood control and conservation, or for municipal water supplies, but there is increasing interest in providing recreational facilities as part of these projects. Economic models and methodological procedures will be developed for recreation demand analysis in the Wildhorse Creek Watershed near Duncan, Oklahoma. Data will be assembled on population, miles traveled, money spent, income, hours worked and other variables needed to estimate the demand for outdoor recreation in the selected area. Tourist surveys, city records and published data will be used as source material. A sample of the users of the facilities in the area will be surveyed by questionnaire structured to obtain information on the projected use of all facilities. These will be analyzed by several of the best developed techniques to derive effective demand schedules for the recreational facilities in the area.

2.41

Oregon State University
Corvallis, Oregon
SURVEY OF EFFORT AND SUCCESS BY OREGON ANGLERS
Lyle D. Calvin
Supported by Oregon State Game Commission

Objectives: To estimate the number of angler days and fish caught by Oregon anglers during 1965 for each species of fish in each area of the state.

Progress to Date: Sampling has been completed which involved 20, 000 phone calls to persons whose names were drawn from Oregon telephone directories, and 3, 500 questionnaires to out-of-state anglers.

Preliminary reports have been completed showing the amount and location of fishing effort by area of residence, type of fishing, location of fishing and month. A final report is in preparation.

2.42

Portland, Oregon
RECREATIONAL USE OF WILDERNESS TYPE AREAS, AND REQUIREMENTS OF RECREATION IN RELATION TO OTHER FOREST USES
Wiley D. Wenger, Jr.
Supported by U. S. Department of Agriculture

Object: To determine (1) special uses of wildland resources as wilderness through dynamics of wilderness recreation, and (2) management alternatives to maximize output values of this use in keeping with demands for other uses.

Plan of work: User population will be defined and sampling methods developed from it. Unmanned registration station systems will be calibrated to wilderness areas in population centers of the region, and through such systems, to obtain data on mechanics of use. User studies will first focus on characteristics of groups or classes of wilderness users, followed by characteristics of communities from which users come, and similarities and differences used as clues to key elements of wilderness recreation to find physiological needs and acquired needs of man. Inherent relationships of user needs to specific physical resource opportunities will be studied and wilderness redefined. Physical environment will be related to historical, sociological, and psychological factors, and individual and social output values measured. Allocation studies will concentrate on wilderness costs and output values, wilderness-resource inventory studies, and wilderness versus non-wilderness recreation use. Management studies will include wilderness preservation and rehabilitation including ecological management, fire prevention, cleanup, and control of use; facilities needed; signs, publications, naturalist personnel, etc. for interpretation of environment and facilities; and management effectiveness.

2.43

Devereux Schools, Devon, Pennsylvania
THE NATURE AND SOME DETERMINANTS OF A SUCCESSFUL THERAPEUTIC CAMP EXPERIENCE IN A RESIDENTIAL TREATMENT SITUATION
George Spivack
Supported by The Devereux Foundation

This study is still in progress. The purpose is to develop criteria of success in a therapeutic camping situation and to explore possible correlates and predictors of this success. Data obtained include overall staff ratings of success in an eight-week camping situation; a weekly rating system employed by counsellors of each camper's skill development, motivation and social adjustment; ratings prior to the camp experience of student motivation for camp: ratings of camper's personality; camper peer relationships and social status during the camping situtation; and such information as IQ and previous camp experience.

2.44

Pennsylvania State University, Agricultural Experiment Station, University Park, Pennsylvania
THE DEMAND STRUCTURE FOR RURAL RECREATION
James H. Copp
Supported by U. S. Department of Agriculture

Objectives:

1. To investigate the public's structure of preferences and motivations in the use of leisure time.

2. To estimate the relative demand to be expected for the various kinds of recreation which can be provided in rural areas.

Procedure: A random cluster sample of at least 1,200 rural and urban adults in a metropolitan county in Pennsylvania will be personally interviewed in order to determine patterns of leisure time activities and interests. In addition, information on attitudes, background characteristics, disposable time, equipment, and accessibility will be collected. These data will permit the delineation of the present demand structure, the inference of underlying motivations, and the estimation of future requirements for those kinds of recreation which can be provided in rural areas.

2.45

University of Rhode Island, Agricultural Experiment Station, Kingston, Rhode Island
ANALYSIS OF FACTORS RELEVANT TO THE DEVELOPMENT OF RECREATIONAL RESOURCES
Irving A. Spaulding
Supported by the State of Rhode Island

Project Objectives: To analyze the social pattern of recreational activity characteristics of the State of Rhode Island and to ascertain the potential use of rural recreational resources.

Work Proposed: Mass recreation and leisure are of recent concern in this nation's way of life. Many studies of these topics have concentrated on the enumeration of types of recreational activity in which people engage, people's reason for their choice of recreational activities, and time used in recreational activity. The social and psychological implications of some specific recreational activities have been analyzed. Recreation is frequently included as an activity to be given consideration in community organization. Such information contributes appreciably as background for the type of study proposed here which entails making an evaluation of potential use of recreational resources.

2.46

University of Tennessee, Agricultural Experiment Station, Knoxville, Tennessee
THE DEMAND FOR OUTDOOR RECREATION IN TENNESSEE
Joe A. Martin
Supported by U. S. Department of Agriculture

Objective: to determine and describe the unmet demand for specific kinds of outdoor recreation opportunities in Tennessee.

Procedures: Surveys of users and potential users of outdoor recreation facilities will be conducted to determine: 1) the need or desire for additional facilities; 2) what services do users want provided in association with various types of recreation facilities; 3) how much people would be willing to pay for various types of recreation services; 4) how far people would travel to use various types of recreation facilities.
Data for the study will be secured by personal interview with: 1) a sample of urban population stratified by income, occupation and race, and 2) a random sample of population in selected rural areas. Supplementary data will be obtained by a mail questionnaire to a sample drawn from the membership rolls of outdoor recreation groups.

2.47

Tennessee Game and Fish Commission, Nashville, Tennessee
CREEL CENSUS AND ECONOMIC SURVEY
James D. Little
Supported by U. S. Department of the Interior

Objectives: to determine the:

(1) Fishing pressure, catch per hour, and total catch in the seven mile Dale Hollow Tailwater.

(2) Economic value of the fishery.

Procedure: A creel census designed and recommended by Dr. Don Hayne, Institute of Statistics, North Carolina State College, titled "Sampling with Probability Proportional to Size," will be used. One creel clerk will collect and record information from fishermen five days per week on a year-round basis. Each day, the clerk will make a total pressure count at a random pre-selected time, and spend the remainder of the day contacting fishermen. Data collected will include number and weight of fish by species, number of hours fished, methods of fishing, etc.

Economic information pertaining to expenditures by fishermen will be collected from approximately 10 percent of the fishermen contacted.

2.48

Utah State University, Logan, Utah
SPACIAL RELATIONS AS A GUIDE TO PREDICTING CAMPGROUND USE
R. S. Whaley
Supported by U. S. Department of Agriculture

Objectives: To develop a prediction model for use of a potential campground complex on the basis of (a) its location relative to the spacial distribution of the population of potential users, (b) the number of facilities at the complex, and (c) competing facilities.

Procedures: Residence, defined by census districts, of overnight users of approximately ten camping complexes in Northern Utah will be collected during the summer season, 1965. The total camping population of these census districts will also be determined by previously tested methods developed by ORRRC. Two regression models, one for local users and one for tourists, relating use per 1, 000 population of potential users from a given origin to distance traveled, size of area visited, and spacial distribution and size of alternative opportunities will be developed.

2.49

West Virginia University
Agricultural Experiment Station
Morgantown, West Virginia
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST
Kenneth D. McIntosh
Supported by U. S. Department of Agriculture

Objective: (1) To identify and analyze those social, psychological and economic variables which motivate consumers to participate in outdoor recreational activities. (2) To ascertain and evaluate consumer satisfaction with locational and environmental factors as they relate to consumption patterns. (3) To identify and analyze the reactions of participants to rules and regulations, physical facilities, social activities and off-site accessory attractants. (4) To identify and analyze the expenditures incurred by those who actively participate in outdoor recreational activities.

A random sample of hunting and fishing license holders will be drawn and by use of personal interviews or mail questionnaires, or both, information will be generated to be used in the analysis. Multiple correlation analysis will be used based upon such variables as income, age, education, experience, residency, sex, rural background, and leisure time and the frequency of hunting and fishing. The attitude of hunters and fishermen with regard to hunting and fishing facilities, rules and regulations, attitudes toward landowners and their willingness to pay for the privilege of hunting and fishing on privately-owned lands will be investigated.

2.50

University of Wisconsin
Agricultural Experiment Station
Madison, Wisconsin
ANALYSIS OF FACTORS INFLUENCING THE DEMAND FOR RECREATIONAL FACILITIES IN NORTHERN WISCONSIN
Sydney D. Staniforth
Supported by U. S. Department of Agriculture

Objectives: 1) Evaluate the potential to expand the market for recreational facilities of Northern Wisconsin and determine the geographic areas in which this market expansion represents the greatest potential, 2) Determine the relative importance of various features and facilities to consumers, 3) Investigate the decision process by which recreation plans are made and the nature of competition Wisconsin faces in this decision, 4) Determine the effects marketing the basic natural resources of the area in different forms and uses will have on returns to resource owners and employment and income in the area.

Work Proposed: The initial phase of the study will be an analysis of the factors affecting demands, conducted through a survey of potential users of recreational facilities. The next phase of the project will estimate the expenditures of those recreating in the area. The final phase of the study will analyze the effects of marketing basic recreational resources through alternative avenues or uses. Due to basic differences in natural resources and markets, this whole analysis will be conducted separately for Northeastern and Northwestern Wisconsin.

3. ECONOMICS

3.1

Auburn University, Agricultural Experiment Station, Auburn, Alabama
MARKETING OF OUTDOOR RECREATIONAL SERVICES IN RURAL AREAS OF ALABAMA
Edward E. Kern, Jr.
Supported by U.S. Department of Agriculture

Objectives: 1. To determine economic and related characteristics of outdoor recreational facilities and services in rural areas. 2. To develop guidelines for successful operations of rural outdoor recreational facilities.

Determine economic and related characteristics of outdoor recreational facilities and services in rural areas and develop guidelines for successful operations of such facilities.

Field interviews will be conducted throughout the State among individuals currently marketing outdoor recreational services in rural areas. Sampling will be based on a directory currently being developed by the Alabama Cooperative Extension Service. Information obtained will include type of services offered, locational factors, operational procedures, inventory of facilities, characteristics of development and financial arrangements, returns and expenses, and demand as viewed by the seller of the services.

3.2

Flagstaff, Arizona
COSTS AND BENEFITS OF WATERSHED MANAGEMENT IN SOUTHWEST FORESTS
David P. Worley
Supported by U. S. Department of Agriculture

Object: To determine the effects of management intended to increase runoff, on water supply, sediment, timber and forage production, wildlife population and recreational use of watershed lands; and to formulate ways to economically evaluate alternative watershed management treatments and develop guides for management decisions.

Plan of work: Study will be made of (1) products and services forthcoming from watershed areas, (2) the economic values associated with different watershed products, (3) yields of water and sediment associated with watersheds treated differently, and water potential from the precipitation measurements, (4) the importance of the water yield from the different watersheds, (5) an inventory system to determine the feasibility of imposing specific treatments on different watersheds and the effect of treatment on timber growth, (6) stumpage values in different market contacts to find the value of timber growth as affected by watershed treatments, (7) forage production and use including grass, forbs and browse, on individual watersheds, (8) food habits of wildlife on the watersheds, (9) defining fishery potential and wildlife habitat requirements, (10) economic implications of the treatments to the livestock industry, (11) results of land treatment on recreation potentials, such as picnic areas, campgrounds, and hunter use; and correlation of recreation use and potential with watershed treatments, (12) costs of treatments, and (13) multiple-use evaluation methods.

3.3

University of California, Berkeley, California
THE IMPACT OF WATER EXPORT ON THE AREA OF ORIGIN: A STUDY OF THE OWENS AND MONO BASINS OF EASTERN CALIFORNIA
James J. Parsons
Supported by U.S. Department of the Interior

This proposal is for a study of the consequences of water export upon human utilization of the Owens and Mono Basins. From these two adjacent basins of internal drainage a sufficient amount of water since 1913 has been transferred 250 miles south to the City of Los Angeles to alter significantly what had been a slowly growing agricultural economy based on irrigation. This export of water, vital to the rapid growth of Los Angeles, has thus far been an effective barrier to growth in the area of origin where the chief utilization in a region of prime scenic attraction is now recreation, which may expand considerably in the near future. The project has four chief objectives: to determine how water export has affected the utilization of this area from 1913 to the present, to estimate what utilization might have occurred without water export or its possible cessation, and to discuss relationships and applications of the

Owens-Mono case to general problems of water export. Background investigation of the physical setting and historical development of the two basins will be included.

3.4

University of California, Agricultural Experiment Station, Berkley, California
ECONOMIC ANALYSIS OF MULTIPLE USES OF WILDERNESS AREAS
Michael F. Brewer,
Supported by U.S. Department of Agriculture

Develop methods of measurement of costs and benefits associated with alternative uses of wilderness lands to be used as bases for other analyses by the Wildland Research Center. Apply these methods and measurements to particular wilderness areas and problems. Measure demand for wilderness recreation. Compare wilderness recreation uses with alternative recreational uses. Evaluate non-recreational land uses. Analyze changes in demand over time. Develop inferences on optimal allocation of resources.

DESCRIPTION OF WORK — The work has three phases: 1) a review of the literature, 2) development of an appropriate theoretical framework for handling the problems involved, and 3) analysis of available empirical evidence pertinent to the problems. Proper evaluation of costs and benefits involves a number of basic issues in economic theory, and these will be investigated. Projections of demand for wilderness use will be attempted on the basis of regressions of per capita visits on per capita income. A number of predictive equations have been obtained, and additional analysis will be carried out. Investigation of alternative use (opportunity cost) will be pursued by attempting to evaluate net value per acre in the major alternative uses, and to project future demand.

3.5

Berkeley, California
DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST
Harry W. Camp
Supported by U.S. Department of Agriculture

Object: To study the economic and social determinants that affect requirements and demand for forest recreation; determine other characteristics basic to identifying outdoor recreation areas and establishing safe use; and to develop management practices to maintain and improve the recreation potential of forests.

Plan of work: In measuring recreation use, study will be made of sampling procedures, winter and season-long recreation on camp and picnic area use on the Stanislaus Forest. A pilot measurement system will be developed as well as computer programs, and the pilot test calibrated to an entire national forest recreation complex. Study will be made of patterns of recreational use with emphasis on development of survey methods and description of use patterns such as length of stay, seasonal changes in use, and activities during stay; the impact that recreationists have on vegetation and developed picnic grounds and cultural methods for increasing the carrying capacity of the highly used sites; preferences in camp or picnic areas, changes that will reduce or reorient the investment costs, ways to accommodate peak recreation loads; better distribution of wilderness area use; and maximum timber-recreation conflicts, timber management adjustments for recreation, timber and anadromous fisheries conflicts, wildlife conflicts with other uses, and costs and returns of recreation. Needs will be projected for consumer preference in recreation and methods developed for such projections.

3.6

San Jose State College
San Jose, California
ANALYSIS OF FEDERAL GRANTS-IN-AID PROGRAM EXPENDITURES AND A SURVEY TO DETERMINE TYPES OF EXPENDITURES FOR OUTDOOR RECREATION.
Miss Linda Christensen
Supported by U.S. Department of the Interior

These studies will be the principal special assignments of Miss Christensen during a full-time, 3 month internship with the Bureau of Outdoor Recreation and may serve as pilot studies for more extensive research.

No. 1. Analysis of Federal Grants-In-Aid Program, Land and Water Conservation Fund, Pacific Southwest Region: Study of funds granted and expended in California, Nevada, Arizona, Hawaii, Guam and American Samoa for outdoor recreation including an analysis of type of planning accomplished, land acquired, type and scope of development and relationship to general planning. The intent is to continue up-dating the study.

No. 2. Survey of Expenditures for Outdoor Recreation in Counties and Cities in California. A tabulation will be made of expenditures for outdoor recreation by all counties and selected cities in California for a 15 year period, together with an analysis by geographic area, size of jurisdiction, and other identifiable factors.

3.7

Natural Resources Center, Colorado State University, Fort Collins, Colorado
THE ECONOMICS AND ADMINISTRATION OF WATER RESOURCES
S. C. Smith
Supported by Department of the Interior

The objectives of this research are (1) to estimate the economic value of alternative, high altitude, watershed manipulation practices; (2) to relate Colorado's system of legally defined water rights to engineering. - hydrologic criteria for the improved specification of the rights; (3) to specify how water management organization can best adapt to a changing pattern of public water management objectives in a historically developed water management system where existing supplies are fully appropriated; (4) to specify the relationships between "base studies" of a regional economy and and the economics of system design to meet specific demands; and (5) to estimate the value of water and wet lands in wild life recreation use in comparison with alternative uses.

3.8

Colorado State University, Agricultural Experiment Station, Fort Collins, Colorado
IMPACT OF LAND USE ON WATER QUALITY WITHIN A FORESTED MOUNTAIN WATERSHED
James R. Meiman
Supported by U. S. Department Of Agriculture

The objectives of this research project are: 1) to assess present water quality characteristics within a forested mountain watershed at varying natural flow regimes, 2) to measure the effects of multiple land use management — including road construction, logging, recreational developments, and grazing — on water quality. Water samples will be obtained at regular intervals at selected sites within the 102 square mile Little South Fork of the Cache la Poudre Watershed. Water quality determinations will include total residue, filtrable and non-filtrable residue, pH, turbidity, coliform group bacteria and temperature. Measurements will be made before, during and after the application of various land management practices. During the calibration period various inventories of physical features of the watershed as well as cataloging of type and volume of recreational use will be made.

3.9

Economic Research Service, U. S. D. A.
ECONOMIC APPRAISAL OF IMPACTS OF URBAN GROWTH ON RURAL LAND USE
Hugh A. Johnson
Supported by U. S. Department of Agriculture

Object: To determine changes in land use occurring in rural-urbanfringe areas around cities, factors causing the changes, and land use problems stemming from the changes; and to develop guides for use of agricultural lands, for transfer of lands from farm to non farm uses, and for working out land use adjustments.

Plan of Work: Changing land from rural uses to urban-related uses in environs of major metropolitan areas will be analyzed. Land use and cover keys for airphoto interpretation oriented specifically to urban fringe land use situations will be developed. A land use and ownership classification system will be field-tested in urban regions with different land use and ownership patterns and results correlated with the land use keying system developed for airphoto analysis. The impact of urban sprawl on rural areas will be analyzed to ascertain the factors causing the major changes. Alternative opportunities to conserve viable agricultural communities through regional planning and guided area development will be evaluated, including ways to compensate land owners for water and other resource conservation and for certain amenity products, such as preservation of open space, and creation of outdoor recreation opportunities. Planning of new towns and urban developments will be analyzed. Specific factors involved in the changing land use and kinds of problems stemming from the changes will be isolated and keyed to the airphoto and classification studies, and land-use conditions in various urban fringe areas determined.

3.10

Economic Research Service, U. S. D. A., Washington, D. C.
THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS
Hugh A. Johnson
Supported by U. S. Department of Agriculture

Object: To ascertain rural land characteristics needed for various outdoor recreation and supply of such land; to identify types of recreational land uses amenable only or primarily to public development, private enterprise, or both; and to explore means to expand various types of recreational uses of rural land.

Plan of Work: Information will be obtained through interviews, questionnaires, data analysis, etc. Components of effective demand for outdoor recreation will be appraised in relation to capacity of the resources. Studies will be made of (1) management and community attributes needed to operate recreation enterprises, and determination of sizes and combinations of recreational activities needed, (2) selected examples in recreation areas primarily in public ownership, primarily in private ownership, and both. Information will be obtained on costs of acquiring the land and other resources, costs of developing and operating the facilities, etc.; and (3) the various types of private recreation enterprises which might be adapted to farms and rural communities (vacation farms, campgrounds, hunting, fishing, etc.) Various kinds of problems limiting optimum development of outdoor recreation on rural land will be evaluated and analysis made of ways to overcome these problems, as well as possible new activities, combinations or incentives that might facilitate additional developments.

3.11

Bureau of Outdoor Recreation, U. S. D. I., Washington, D. C.
STUDY OF FY 1967 FEDERAL OUTDOOR RECREATION BUDGET
Morton J. Garfield
Supported by U. S. Department of the Interior

This study will attempt to identify the total Federal outdoor recreation budget for FY 1967 for those budget elements which lend themselves to forward programming, i. e., development/construction, land acquisition, operations and management, technical assistance, research, planning, and administration. It will also identify outdoor recreation obligations for the last full year of operation (FY-1965) for those elements which do not lend themselves to forward programming, i. e., loans, grants, and the many "peripheral" activities of agencies having a secondary impact on recreation (as identified in the inventory of Federal outdoor recreation programs).

3.12

Bureau of Outdoor Recreation, U. S. D. I., Washington, D. C.
AN ANALYSIS OF THE FEDERAL CREDIT PROGRAMS RELATED TO COMMERCIAL OUTDOOR RECREATION
Morton J. Garfield
Supported by U. S. Department of the Interior

To examine the nature and magnitude of Federal credit programs that have an impact on the Nation's supply of commercial outdoor recreation. The first phase of the study involves the collection and analysis of loan data from the Small Business Administration, Area Redevelopment Administration (now Economic Development Administration), Farmers Home Administration and other Federal agencies lending to private enterprise. The analysis part of the study will determine (to the extent the available data permits) (1) the geographic distribution of Federal credit programs compared with the supply of outdoor recreation resources; (2) number, value, and types of loans made during 1962, 1963, and 1964; (3) measure the recreation effectiveness of credit programs by comparing agency programs; (4) measure program constraints and the patterns of loan applications and approvals; and (5) assess the need for further Federal credit programs.

3.13

University of Florida, Agricultural Experiment Station, Gainesville, Florida
THE USE OF RIPARIAN LAND ON STREAMS FOR RECREATION AS A SOURCE OF INCOME FOR A RURAL AREA IN NORTH FLORIDA
C. E. Murphree
Supported by the State of Florida

Objective: To estimate the present use of riparian land and the impact of its use on the economy of a rural area in North Florida. To examine the feasibility of shifting riparian land to a specified recreational use as a means of elevating the income of the area.

Work proposed: The study proposes to inventory a specified category of land deemed suitable for recreation, examine the change in value productivity of the land with a shift to recreation and estimate the effect of a shift to recreation on the economy of the area.

3.14

University of Georgia
Agricultural Experiment Station
Athens, Georgia
GOVERNMENT AID ON PRIVATE RECREATION DEVELOPMENTS IN THE STATE OF GEORGIA
William T. Moss
Supported by State of Georgia

1. To uncover present and future trends at all levels of government in regard to aid extended to the Georgia landowner for development of private recreation areas. 2. To determine existing opinions, attitudes, and legislation of the various levels of government together with expected future trends toward private recreation developments in Georgia. 3. To answer the question: How much and what type of aid can the Georgia landowner expect from federal, state, and local levels of government on developing a private recreation enterprise? 4. To develop models showing the various uses of government aid and basic considerations on planning in regard to the typical Georgia farmer.

Description of Work Proposed: Some of the materials for this study will be gathered from periodical literature available at the library. Although library research may prove worthwhile, the most valuable information will come from personal interviews with those men who represent agencies of authority and from correspondence with other men and agencies close to the subject. From these letters and interviews, it is hoped to get the opinion of these men and agencies in regard to trends concerning the subject. All existing and proposed legislation would be gathered at the state and federal levels. After the above information is gathered, it will be integrated to form a firm foundation from which basic models can be established that will apply to the typical Georgia landowner.

3.15

Iowa State University, Agricultural Experiment Station, Ames, Iowa
FOREST-RECREATION INVESTMENT OPPORTUNITIES IN IOWA
C. H. Stoltenberg,
Supported by U.S. Department Of Agriculture

Objectives:

1. Appraise current demand for forest recreation in Iowa.
2. Evaluate institutional framework for public recreation progress.
3. Analyze current supply of forest recreation opportunities, expansion potential.
4. Evaluate impact of forest recreation development on a sample community.
5. Identify areas for productive additional research in forest recreation.

Work Proposed: Recreationists will be interviewed in at least two sample forest areas in Iowa. The resident population of Iowa will be sampled by a mail questionnaire to estimate current demand. Supply conditions will be studied in cooperation with the Iowa Conservation Commission.

3.16

University of Kentucky, The Agricultural Experiment Station, Lexington, Kentucky
ECONOMIC IMPORTANCE OF RECREATION FACILITIES AND RELATED SERVICES TO KENTUCKY FARMERS
John H. Bondurant
Supported by U. S. Department of Agriculture

To determine and evaluate the importance of recreation as a source of farm income. To inventory the types of recreational facilities available. To determine the importance of location of recreation facilities in relation to population centers. To ascertain the capital, labor and other resource requirements in the development and operation of on-farm types of recreation facilities.

Description of Work: A questionnaire will be used to inventory and describe the different types of farmer-operated recreation facilities in about one half of the 120 counties in the state. This information will be obtained from County Agricultural Extension Agents, County Soil Conservation Service workers, and Vocational Agricultural Teachers. This will be followed by obtaining specific information by schedule as to resources used, investment and types of on-farm recreation facilities and related services. The schedules will be obtained from a sample of the significant types of recreational facilities. Additional information on recreation and related data will be obtained from various secondary sources. The information obtained will be analyzed and manuscripts prepared for one or more publications. The manuscripts will probably emphasize the types of facilities available-their location and their economic importance as a source of farm income.

3.17

University of Michigan, Ann Arbor, Michigan 48104
OUTDOOR RECREATION MOTIFS IN MAGAZINE ADVERTISEMENTS
William C. Welch
Supported by University of Michigan

Advertisers capitalize on societal taste trends to sell products; since outdoor recreation is popular it is expected that advertisers frequently use outdoor recreation themes. The problem is to see if there is a trend in the use of the out of doors in selected advertisements since 1947.

3.18

University of Minnesota, Agricultural Experiment Station, St. Paul, Minnesota
ECONOMIC PROBLEMS IN THE USE, ALLOCATION, REGULATION, AND PRICING OF WATER
Philip M. Raup
Supported by U. S. Department of Agriculture

To estimate supply and demand for water for agriculture and competing uses, currently, and for years to come; explore economic consequences of existing laws and doctrine; examine economic issues involved in competition for water among agricultural, recreational, municipal, and industrial uses; appraise alternative forms of organization for conservation, use, and regulation of water resources; and study data bearing on conflicts between public and private rights in control over water resources.

Description of Work: Supply and demand for water in Minnesota will be determined; adequacy of current legislation regulating permits by Division of Waters and Department of Conservation will be tested, and method evaluated. Conflict between public and private interests, and ownership rights will be studied and economic issues examined. Costs of development; division of costs and benefits among users, and delineation of public and private interests will be determined. Detailed research procedures will be developed through joint investigations by economists, law students and professors, and actual research will also be conducted by them. After two years, research will be coordinated with neighboring states making similar investigations to obtain maximum value.

3.19

St. Paul, Minnesota
SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE LAKE STATES
Robert C. Lucas
Supported by U. S. Department of Agriculture

Object: To suggest ways to improve recreation on forests of the Lake States by gaining a better understanding of the characteristics of recreational areas and of the public to the recreation demanded; interrelations of various public and private outdoor recreation facilities; costs; and to improve study methods.

Plan of work: Reports will be published on the distribution of recreational use in the Boundary Waters Canoe Area and its relation to capacity; and a campsite deterioration study by the Univ. of Minn. completed. New studies will be made of (1) how many people use various areas for each type of outdoor recreation, and how this distribution is related to the nature of the area and its location relative to population, transportation and facilities; expressed attitudes about facilities, management, and amount and type of recreational use encountered; relation of demand by campers to income, occupation, education, family structure, and nature of residence, and possible application of this information to use projections; degree to which public and private outdoor recreation facilities are substitutes or complements; problems of sampling and analyzing recreational activities based upon accumulating experience or perhaps several studies on an experimental recreation area where controlled experiments could supplement survey-type field work.

3.20

Cornell University
Agricultural Experiment Station
Ithaca, New York
THE ECONOMICS OF OUTDOOR RECREATION ENTERPRISES
David Allee
Supported by U. S. Department of Agriculture

Enterprise management data on commercial and non-commercial outdoor recreation activities will be developed including input-output relationships, external economics, effects of scale, determinants of location and enterprise demand. Data and analysis needed for public as well as private decisions including those related to public development, finance, planning and land use control will be provided.

Description of Work: Initially private campground operators will be surveyed to obtain physical and economic data. Management analysis of this data will be supplemented with synthesized combinations of resources and service mixes to present a fuller range of possible experience. Survey data will be supplemented with operating information from public activities, and estimates of technical relationships known to biologists and others who have conducted research on various physical and biological aspects of outdoor recreation activities.

3.21

Syracuse University
Syracuse, New York
PRIVATE INVESTMENT IN OUTDOOR RECREATION
Ronald J. Glass
Supported by U. S. Department of Agriculture

Objectives: To discover the factors influencing investment in outdoor (forest environment) recreation, primarily as a basis of evaluating the probable effects of public policies on such investment.

Description of Work Proposed: Mail questionnaires will be used to gather information from all firms engaged in outdoor recreation business (New York-New England area). A randomly selected subsample of nonrespondents and respondents will be interviewed. Area sampling technique will be employed to determine completeness of lists.

Firms will be examined to determine factors influencing their level of investment, including objectives, characteristics of successful operations, factors contributing to failure, nature of costs, nature of product investment decision within the firm, other factors including public policy affecting outdoor recreation.

3.22

North Carolina State of the University of North Carolina at Raleigh, Agricultural Experiment Station, Raleigh, North Carolina
DEMAND ANALYSIS OF SELECTED RECREATIONAL FACILITIES ON NORTH CAROLINA FARMS
E. C. Pasour
Supported by U. S. Department of Agriculture

Objectives:

(1) To inventory the existing farmer-owned and operated recreational facilities on North Carolina farms in order to facilitate the attainment of the subsequent objective and to provide a benchmark for future studies.
(2) To ascertain the demand for selected types of farmer-owned and operated recreational facilities and the respective price and income elasticities of demand for such facilities.

Description: This project represents an attempt to determine the characteristics of demand for specific types of recreational facilities on North Carolina farms. Widespread interest in this area stems from: (1) the potential of recreational facilities as a means of boosting the economy in economically depressed areas, and (2) the potential of increasing farm incomes through the introduction of onfarm recreational enterprises. The population to be studied will be determined from an inventory questionnaire. Farm owners and patrons of the recreational facilities studied will be interviewed to secure the data necessary to attain the major objective of the study.

3.23

North Carolina State University, Agricultural Experiment Station, Raleigh, North Carolina
BENEFIT-COST ANALYSIS OF DECISIONS AFFECTING RECREATIONAL USES OF LAND
G. S. Tolley
Supported by U. S. Department of Agriculture

1) The study will develop planning criteria for spatial changes connected with recreation and urban competition for land. 2) The criteria will be applied to selected situations in the South. Parks will be considered for which Clawson-Hotelling demand curves can be estimated. Subtracting the area under the demand curve from costs of each park will give an estimate of the social benefits needed to justify the park. Theoretical models will be constructed showing how non-market effects and economies of spatial association influence urban land rents. There will be analysis of how the benefit-cost ratio of a project changes through time depending on starting date. Empirical applications will be for areas including such cities as Savannah, Raleigh, or Knoxville. Basic income generating activities will be taken as given. Benefit-cost estimates for alternative planning decisions will be made for park systems, fringe zoning and highway-transit layout. Data will be analyzed on land values from census and tax records, park visitations, traffic counts, housing counts, housing conditions and density, and demographic characteristics.

3.24

North Dakota State University
Agricultural Experiment Station
Fargo, North Dakota
RECREATION DEVELOPMENT IN NORTH DAKOTA
R. W. Cox
Supported by State of North Dakota

Objectives: (1) Inventory outdoor recreational resources and facilities in North Dakota and to evaluate them in terms of present and future needs; (2) compare recreational programs in North Dakota with those in other states; (3) determine the economic benefits to the community arising from the utilization of recreational facilities; (4) recommend action programs for selected areas to aid in development and expanded use of these facilities.

Description of Work: Inventory of present recreational resources and facilities. Utilization of resources and facilities identified in terms of present and projected demand. Experience of other states with recreational facility development will be surveyed to provide data on costs and development programs that could be used in North Dakota. Studies of specified North Dakota recreation areas to determine economic benefit to areas and communities will be made.

3.25

Ohio State University, Agricultural Experiment Station, Columbus, Ohio
ECONOMIC APPRAISAL OF OUTDOOR RECREATION IN SOUTHEASTERN OHIO
J. H. Sitterley
Supported by U. S. Department of Agriculture

Objectives: To determine for the unglaciated area of southeastern Ohio the potentials for commercial recreation enterprises that may be promoted on farm lands by private capital.

1. Analyze a number of firms to determine their needs for credit and technical assistance. Assess their relative strengths as businesses.
2. Survey of recreation seekers in and around southeastern Ohio to determine the current and prospective use of farm lands for recreation under specified conditions of competition, price, leisure time, etc.
3. Estimate, from data gained in (1) and (2) above, the impact of recreation on employment, income, and general economic activity of the area.

Data for phase (1) and (2) will be collected by field interview and enumeration. Project is expected to continue over a period of three years.

3.26

Oklahoma State University, Stillwater, Oklahoma
ECONOMICS OF AGRICULTURAL LAND AND WATER USE, CONSERVATION AND DEVELOPMENT IN WATERSHEDS OF OKLAHOMA
Daniel D. Badger
Supported by Oklahoma State University

The planning, installation and operation of watershed programs with optimum economic efficiency and equity require more knowledge of potential primary and secondary effects. Objectives are (1) to determine the actual and potential changes in use of flood plain land by farmers as a result of reduction in flooding afforded by upstream watershed development programs, (2) to develop alternative predictive models of flood plain land use change following flood protection, (3) to estimate the effect of watershed development upon farm real estate values and prices, (4) to determine the potential value of the water supply created by the floodwater retarding structures for irrigation purposes, (5) to estimate the local secondary effects of the watershed development programs, and (6) to determine feasible institutional arrangements and probable costs of developing alternative recreational facilities. Basic land resource and type of farming data will be obtained from a survey of 200 farm operators with flood plain land in the watersheds of the Washita River Basin of central Oklahoma. Data from secondary sources will be used to identify major trends in the use of upland and bottomland in the Washita Basin.

3.27

Oregon State University
Agricultural Experiment Station
Corvallis, Oregon
WILLAMETTE BASIN DEVELOPMENT STUDY
Gordon R. Sitton
Supported by State of Oregon

OBJECTIVES:

1. Identify the resources, institutions, and other determinants that will limit the direction and magnitude of the economic prospects of the Basin.
2. Compile an inventory of the resources in the Basin and evaluate the characteristics of these resources which will influence development of the Basin and possible changes in resource use under alternatives for development.
3. Isolate alternative possibilities for economic development of the Basin and identify criteria necessary for evaluation of the various alternatives.
4. Review existing data on economic prospects, especially as it permits evaluation of alternatives.
5. Review current research to determine what data will be forthcoming to supplement existing data.
6. Determine the additional data needed for the evaluation of alternative schemes for economic development of the Basin.

Progress to Date

Considerable descriptive materials have been assembled and several consumer, manufacturing, and processing surveys are underway or completed.

3.28

Portland, Oregon
MULTIPLE USE PROBLEMS IN PACIFIC NORTHWEST FOREST LANDS
Carl A. Newport
Supported by U. S. Department of Agriculture

Object: To evaluate alternative forest land uses and to develop and recommend guidelines for selecting the optimum combinations of resource use.

Plan of work: A series of photographs of roadside areas showing forest cover types before and after various silvicultural treatments, will be completed. New studies will be undertaken on (1) alternative management in lodgepole and ponderosa pine forests in buffer strips, roadside zones and streamside areas; (2) economic choice in forage production on rangelands where elk and cattle compete for grass; sheep, deer and cattle subsist on bitterbrush; and where there is competition between sheep and cattle, deer and elk, and cattle and gamebirds, using linear programming to identify the value in animal months per dollar of forage investment; (3) economic aspects of the timber-wildlife decision (to the extent the division in the carrying capacity of game and meat animals has been decided upon, the revenue-maximizing ratio of forage to timber production can be found); (4) the total effect of wilderness establishment on local and regional economies, and guides developed for cost-benefit analysis and necessary data for public land management planning; and (5) preparation of guides and procedures for assigning a portion of roadbuilding and maintenance costs to recreational use, based on vehicle travel, and demands of different vehicles for high engineering standards and maintenance outlays.

3.29

Pennsylvania State University, Agricultural Experiment Station, University Park, Pennsylvania

AN ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION, WITH PARTICULAR REFERENCE TO SMALL WATERSHEDS

Jerome K. Pasto

Supported by U. S. Department of Agriculture

Objective:

1. Inventory existing land use and recreational pattern before and after improvement.
2. To study economics of recreational facilities already provided.
3. Establish criteria for judging physical and economic feasibility of establishing a recreation area.

Procedure:

The research under objective one will be carried out in a watershed where dams are now being constructed, and the impounded water and surrounding land area will be available for recreation. Data will be gathered on existing land use acre recreation patterns, now, and after the new facilities are established. Under objective two information and data will be obtained on facilities already in operation. Also, information will be obtained on the extent of recreational use of hunting and fishing preserves, investment, costs and returns of operation of these and other facilities. Restrictions on land use by different types of posting will be investigated.

3.30

University of Rhode Island, Agricultural Experiment Station, Kingston, Rhode Island

OPTIMAL PLANNING OF RECREATIONAL DEVELOPMENT FOR CHARLESTOWN, R. I.

Arthur Jeffrey

Supported by the State of Rhode Island

Objectives:
1. Ascertain the attitudes and goals of the residents in the area.
2. Determine the relative economic costs and benefits of those projects or plans which conform to the desires of the community.

Work Proposed: The first objective will be attained using the technique of Scalogram analysis. An individual survey will be made of a sample population. The results of the survey will be used to rank the residents favorable or unfavorable in their attitude toward recreational development and determine their recreational goals. Benefit-cost analysis will be used to attain the second objective. Costs will be determined by considering the initial capital costs, the annual operating and maintenance costs, interest rate on investment, opportunity and supercession costs. Benefits will be estimated from varying prices in land transfers. Construction and improvement of commercial structures will be investigated. An attempt will be made to determine the increase or decrease in revenue to the community stemming from the establishment of a recreational facility.

3.31

South Dakota State University Water Resources Research Institute, Brookings, South Dakota

ECONOMIC POTENTIALS FOR WATER RESOURCES DEVELOPMENT IN SOUTH DAKOTA

Rex D. Helfinstine

Supported by U. S. Department of the Interior

South Dakota needs to determine the potential for water resource development in the State because of the need to find a way to arrest and reverse the decline going on in the State's ececonomy. Evidence of this decline includes: farms are becoming fewer, young people are migrating out of the State in large numbers, small towns are declining, and incomes remain low relative to the rest of the U. S. Water resource development may offer one of the most promising avenues for improving both the urban and rural sectors of the economy through industrial diversification, recreation development and increased and more stable agricultural production and associated business activities.

Objectives of this project include:

1. To inventory the resources of the State;
2. To evaluate the potential contribution of water resource development to the economy of the State, the Missouri Basin region, and the nation;
3. To determine the profitability of integrating irrigation into individual South Dakota farmers' operations, including irrigation from the Oahe reservoir and from underground sources.

4. To determine benefits to the State and individuals from development of water-based recreation;

5. To analyze likely other possibilities for water resource development including industrial and municipal uses;

6. To develop criteria for allocation of water among the various feasible uses in South Dakota.

3.32

Texas A & M University, Agricultural Experiment Station, College Station, Texas
AN ECONOMIC ANALYSIS OF THE DEMAND FOR LAND AND/OR WATER-BASED OUTDOOR RECREATION IN TEXAS
Ivan W. Schmedemann
Supported by U.S. Department of Agriculture

Objectives:

1. To construct demand functions and to estimate structural coefficients for those types of outdoor recreation which require the use of land and/or water.
2. To analyze consumer preferences for outdoor recreation activities and facilities and to measure the effects of factors which affect these preferences.

Description of work:
Estimates of demand and consumer preferences generally will be for those activities and facilities located in recreation areas falling into Marion Clawson's classification of (a) intermediate, (b) resource-based. Data for the analyses will be obtained from participants in recreation areas and from populations classed as (a) rural, (b) urban, (c) metropolitan. The estimates of demand for outdoor recreation activities will be expanded to represent the demand for outdoor recreation from the population groups mentioned above. Preference data pertaining to activities and facilities will be extended to provide solutions to acceptance problems facing both the private and public sector of the state. Cooperation will be continued with Texas Parks and Wildlife Department, USDA and the other Federal agencies charged with responsibilities in outdoor recreation.

3.33

Utah State University
Agricultural Experiment Station
Logan, Utah
ECONOMIC FEASIBILITY OF PRIVATE RECREATION DEVELOPMENT IN THE BEAR LAKE AREA
John D. Hunt
Supported by State of Utah

Objectives: 1. To investigate and quantify the major factors which have a bearing upon the economic feasibility of private recreation development in the Bear Lake Area. 2. To prepare a comprehensive master plan for the recreational development in the Bear Lake area based upon the results of data collected in Objective #1.

Work Proposed: Inventory existing recreation developments.

Determine potential available land area for each specific recreation use and location.

3.34

Utah State University, Logan, Utah
THE SOCIO-ECONOMICS OF RECREATIONAL USE OF THE CACHE ELK HERD
J. D. Hunt
Supported by State of Utah

Objectives:

1. To investigate the social and economic importance of the Cache elk herd for hunting.
   - A. To determine the direct costs of management
   - B. To determine the hunting use and the socio-economic characteristics of the user.
   - C. To determine the social and economic importance to the local area and state.
2. To investigate the social and economic importance of the Cache elk herd for sightseeing at Hardware Ranch.
   - A. To determine the direct cost of managing sightseeing.
   - B. To determine the sightseeing use and the socio-economic characteristics of the user.
   - C. To determine the social and economic importance to the local area and state.
3. To furnish information for the formation of policies and procedures for realizing the full social and economic potential of the Cache elk

herd and equating costs for benefits among all users---the hunter and the sightseer.

3.35

The University of Vermont, Burlington, Vermont
INCOME-PRODUCING OUTDOOR RECREATION ON PRIVATE LANDS
John J. Lindsay
Supported by The University of Vermont

The Pilot Project's three main objectives are studying the feasibility of natural resource use for outdoor recreation, studying the demand in Vermont for outdoor recreation (specific types of businesses) and to study the economic feasibility of certain income-producing outdoor recreation businesses. Information is being collected from demonstration units established throughout the state of Vermont. These units include all types of private income-producing outdoor recreation businesses. Mass information is being collected by the use of questionnaires.

3.36

Virginia Polytechnic Institute
Agricultural Experiment Station
Blacksburg, Virginia
ECONOMIC EVALUATION OF RECREATION AS AN ALTERNATIVE USE OF RURAL RESOURCES
Supported by U. S. Department of Agriculture

Objective: (1) To determine present utilization of rural resources in the operation of recreation enterprises. (2) To determine the establishment cost of rural recreation enterprises by type of enterprise. (3) To determine net returns to operator's labor and management by type of enterprise. (4) To determine the factors influencing returns from rural recreation enterprises.

Description: A survey of existing rural recreation enterprises will be conducted. Information relating to establishment cost, operating expenses and net returns will be obtained and summarized by type of enterprise. Net returns will then be related to variables influencing profitability of recreation enterprises. Net returns will also be analyzed by characteristics of enterprise operators.

3.37

University of Wisconsin
Agricultural Experiment Station
Madison, Wisconsin
BASIC LAND ECONOMIC DATA FOR SELECTED AREAS OF NORTHERN WISCONSIN
C. W. Loomer
Supported by State of Wisconsin

The main purpose is to provide, for selected sample areas of northern Wisconsin, both current and historical data on land ownership, taxation, values, and use. It is intended that these data will serve a dual purpose: First, a continuing source of current information on major trends in land economics. Second, the basis for specific studies of problems associated with (a) subdivision and development of land around lakes and in urban fringe areas; (b) the tax effects of public land ownership, and (c) the shift toward recreation as the major land use. To this end, emphasis is given to efficient data storage and recovery methods.

4. RESEARCH METHODS

4.1
University of Idaho, Agricultural Experiment Station, Moscow, Idaho
ESTIMATING RECREATIONAL VISITS AND USE ON UNATTENDED SITES
Howard R. Alden
Supported by U. S. Department of Agriculture

Objective: To develop and evaluate methods for estimating recreational visits and use on unattended wildland recreation sites.

The project is designed to integrate the development of instruments, instrument and one hundred per cent sampling of recreational visits and use, and regression analysis to derive a method for estimating visits and use on unattended recreation sites. Phase one is allocated to development and evaluation of automatic counting devices and visit and use sample forms. Development of instruments is to be done under the guidance of an electrical engineer followed by laboratory testing at temperature and humidity extremes. Subsequent recreation area testing of placement of counting devices and suitability of sampling forms is to be conducted at a restricted site to permit statistical analysis. The second phase, the development of preliminary visit and use estimation methods, is to continue sampling at a restricted recreation area to permit the application of regression analysis to instrument and one hundred per cent sample data. The third phase, testing of preliminary visit and use estimation methods derived from regression analysis, is to be conducted at recreation areas throughout Idaho. Regression and correlation analysis, applied to instrument and one hundred per cent sample data, are to be used to derive final visit and use estimation methods.

4.2
Northeastern Forest Experiment Station, Berea, Kentucky
THE DEVELOPMENT OF A METHOD FOR EVALUATING POTENTIAL RECREATION USE ON SMALL, PRIVATE WOODLANDS
James C. Whittaker
Supported by U. S. Department of Agriculture

The objective of this study is to develop a reliable and easily applied method of evaluating the profit potential from various kinds of recreational use on small, private woodlands. The method developed will enable simultaneous determination of the type of recreational use best suited to a given woodlot.

The project itself is concerned with providing small woodland owners such information as will help them make optimum economic use of their resources for outdoor recreation.

4.3
Migratory Bird Populations Station
U. S. D. I.
Laurel, Maryland
SPY-BLIND STUDY TO LEARN THE ACCURACY WITH WHICH HUNTERS REPORT INFORMATION THROUGH MAIL SURVEYS
Alfred J. Godin
Supported by U. S. Department of the Interior

Study is designed to determine the reliability with which hunters report on wing collection envelopes the time of day that they shoot their birds. A further objective is to determine the reliability with which hunters report crippling loss on the mail questionnaire survey.

From concealment, field co-operators will record on special "Spy-blind" forms, a chronological record of the activities of hunting parties. This will include the time of day, and/or hit but not retrieved.

Following an observed hunt, hunters will be given a supply of serially numbered duck wing envelopes and asked to follow the instructions on the envelope and to return one wing from each duck they have shot. Completed "Spy-blind" forms and envelopes will be compared at the Migratory Bird Populations Station to determine the degree of agreement or disagreement in reported time of kill and reported crippling loss.

4.4
University of Massachusetts, Amherst, Massachusetts
LOCATION OF POTENTIAL OUTDOOR RECREATION AREAS FROM AERIAL PHOTOGRAPHS
John J. Lindsay
Supported by University of Massachusetts

Test the feasibility of using various scales of aerial photographs to locate potential outdoor recreation areas in the natural environment.

Objectives:

1. To determine the best scale of aerial photograph to use.
2. To determine if aerial photographs can be used for this purpose.
3. To establish a set of criteria that can be used to evaluate potential outdoor recreation areas.

4.5

University of Michigan, Ann Arbor, Michigan

A RESOURCE ALLOCATION MODEL FOR MULTI-FACTOR GOALS

Ralph Lukeh
Supported by U. S. Department of the Interior

I am designing a resource allocation model which will supply information for the new "programming-planning-budget system" being adopted by the Bureau of Land Management. The primary thrust of the dissertation will involve the construction of a quantitative method for assigning values to various outputs from public domainlands inrelation to BLM-multifactor goals. The three goals will be efficiency; economic stabilization and economic growth. The model will indicate the necessary trade-offs among the outputs for achieving these goals. I will test the model as a case study of one BLM planning unit in Montana.

4.6

University of Michigan, Ann Arbor, Michigan

PRODUCTION POSSIBILITY RELATIONS FOR LAND WITH RECREATION AND OTHER POTENTIAL USES

David A. Burack
Supported by U. S. Department of Agriculture

This research will develop a method to derive production possibility relations with outdoor recreation as one of the outputs. Economic theory regarding the optimal allocation of land among alternative uses has been well known for some time, and several investigators have discussed the application of this theory to multiple use lands where recreation is a competing use. But empirical work has been hampered by a lack of solid, replicable data regarding the substitution of wild land among various uses.

The project will enumerate specific types of technical data needed to fit an allocation model, probably a linear program. Special attention will be paid to the problem of homogeneity of inputs and outputs, and this will entail an explicit attempt to deal with a revised definition of the units in which various types of recreation are measured. In order to avoid problems of aggregation, the model described will be a small forest tract. A bibliography of research in the economic allocation of wild lands to recreation will be included.

4.7

Michigan Department of Conservation
Lansing, Michigan 48926

STUDY OF METHODS AND PROCEDURES IN GAME HARVEST SURVEYS

Lawrence A. Ryel
Supported by U. S. Department of the Interior

Objectives: Develop improved methods and procedures for conducting game harvest surveys.

Procedures: Conduct a continuing study of operations on current surveys. Review methods used in other states and consult with professional survey statisticians when necessary. Visit other agencies conducting similar surveys to study their procedures. Develop statistical models of survey operations and review pertinent statistical theory. Test various methods of improving reliability of game harvest surveys. This might include:

(a) Using previous year's license files to permit contacting selected hunters before the small game season opens.
(b) Testing efficiency of different questionnaire forms.
(c) Checking validity of mail survey responses by comparison with known small game kills on special areas or examining deer at locker plants.
(d) Establishing a list of regular "cooperators" and comparing their success with that of the average hunter to investigate possible use of a combination of such a system with random samples of all licensees.
(e) Devising a means of determining total cottontail rabbit kill since current small game harvest mail surveys must be sent before rabbit season ends.
(f) Investigating reliability of toll booth counts of deer coming across Straits of MacKinac Bridge by means of sample counts.

4.8

St. Paul, Minnesota

COOPERATIVE FOREST RECREATION RESEARCH UNIT WITH THE UNIVERSITY OF MICHIGAN

Hugh C. Davis
Supported by U. S. Department of Agriculture

Object: To better understand recreation use distribution and use preference, relation of demand to user characteristics, and to what extent and how different outdoor recreations may be substituted one for the other; to stimulate and help plan and guide research in forest recreation at Michigan University; to motivate faculty to include the subject in their research programs; and to increase the supply of qualified people to do forest recreation research.

Plan of work: A project leader stationed at the University of Michigan, Ann Arbor, will make contacts with faculties to learn the special interests and abilities of individuals, students, and undergraduate organizations; and acquaint them with forest recreation problems and opportunities for productive research; help formulate research problems and plans; serve as technical advisor and coordinator in problem selection, work planning, and review of results; recommend to the Forest Experiment Station, projects deserving of cooperative aid; act in liaison with federal land agencies in providing research areas, facilities, and assistance; conduct research to complement studies in use distribution and user preference, relation of demand to social and economic characteristics of users, and substitutability of outdoor recreation; investigate and test study methods and measurement techniques; and try to stimulate basic research by psychologists and sociologists on benefits of different kinds of forest recreation in contrast to other kinds.

4.9

Ohio Division of Wildlife, 1500 Dublin Road, Columbus, Ohio

TELEPHONE SURVEY OF GAME HARVEST AND HUNTING PRESSURE

Kenneth R. Russell
Supported by U. S. Department of the Interior

Objectives: To measure harvest and hunting pressure by physiographic and forest region.

Procedures:
A stratified random sample of residential telephone subscribers will be drawn to permit estimates, with known confidence limits, of harvest rates and hunting pressure to be projected for absolute estimates according to physiographic and forest region. A listing of all telephone exchanges and the number of subscribers in each will be obtained from telephone company sources. A random sample of these exchanges will be drawn with subsequent samples of columns drawn from the pages of the selected directories. Plans include addition of three statewide direct dial telephone lines to the Department of Natural Resources Centrex board in the Ohio Department Building. An additional business line will be installed as well for local calls.

It is planned to engage a number of retired female employees from the Ohio Bell Telephone Company to make the individual calls and record the data. As a group these women are experienced in telephone-public relations, can be expected to be as objective as is humanly possible in conducting the interviews since they can be assumed to be a nonhunting group, and are least likely to arouse a hostile, negative or defensive response on the part of the respondents.

The survey period will begin September 16 and will continue through two weeks past the close of the grouse and fur season in late February. A separate sample will be drawn and separate survey taken of approximately 10,000 names bi-monthly during the survey period. Drawn names will be returned to the sampling universe and could be included in subsequent drawings. The respondents will be queried on their hunting activities for the most recent half-month only, number of hunts, species hunted, take by species, duration of hunts, and location of hunts. It is estimated that each 10,000 sample unit will yield between 800 and 1000 households with hunters. Resulting data will be tabulated at the Olentangy Wildlife Experiment Station and appropriate statistical tests will be applied.

4.10

Oklahoma State University, Agricultural Experiment Station, Stillwater, Oklahoma

DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED

Daniel D. Badger
Supported by U. S. Department of Agriculture

1. To develop appropriate economic models and methodological procedures applicable to

recreation demand analysis for the recreational complex in the Wildhorse Creek Watershed. 2. To assemble primary and secondary data on population, miles traveled, money spent, incomes, hours worked, and other variables needed to estimate the demand for outdoor recreation in the selected area. 3. To estimate demand for both local and nonlocal recreation from which projections will be made as to the number of visitors using the facilities in the Wildhorse Creek Watershed.

Procedure: Major emphasis will be placed on developing methodological procedures and appropriate models for analyzing the data. The various models will be studied and the best techniques will be used to measure the demand for recreation. Basic data on population, income, occupations, hours worked and hours of leisure time, transportation networks, mobility, etc. will be obtained from tourist surveys, city records and published data. Concentric distance zones from the Stephens County recreational complex will be established and visitors to the various zones determined. A sample of the users of the various recreational facilities will be surveyed by a questionnaire structured to obtain information on the projected use of all facilities. These will be analyzed by several of the best developed techniques to derive effective demand schedules for the recreational facilities in the area.

4.11

Department of Highways, Downsview, Ontario
RECREATIONAL TRAVEL STUDY -
"CARBON TRACER" QUESTIONNAIRE
Roy I. Wolfe
Supported by Department of Highways, Ontario

The Recreation and Travel Study was instituted in 1964 and is a continuing project that draws on the support of other provincial departments and through the Joint Highway Research Program, of various universities in Ontario. The present status of the study is described in "Parameters of Recreational Travel: A Progress Report", which will be published in the 1965 Proceedings of the Canadian Good Roads Association, Ottawa.

The "carbon tracer" questionnaire will be submitted to a sample of visitors to Ontario Provincial Parks during the summer of 1966; every time a member of the sample enters any Provincial Park throughout the season he will be questioned anew about his travel habits and recreational activities since his previous visit. Thus, for the first time, it will be possible to trace a body of recreationists through the Parks system throughout the season. The information thus obtained will be mathematically treated, by means of the opportunity model, factor analysis, etc., in the hope that a more accurate predictive tool for Park travel will be devised than has yet been achieved.

This part of the Recreational Travel Study was begun in summer, 1965, and will be completed in Spring, 1967.

4.12

Oregon State University,
Agricultural Experiment Station,
Corvallis, Oregon
SIMULATION AS A MEANS OF STUDYING
RESOURCE ALLOCATIONS
Albert N. Halter
Supported by State of Oregon

Objectives:

1. To build mathematical models of the environment and decision-making processes of various resource allocating units (firm, industry, agency, both public and private).
2. To operate and test these models on digital computers.
3. To design and test alternative decision-making criteria and processes.

Progress to Date

A computer simulation model of a relatively small river basin has been developed that is capable of comparing sizes of reservoirs, channel capacities, water use priorities, operating procedures, and other management policies that come within the economic framework.

4.13

Logan, Utah; Utah and adjacent states
FOREST RECREATION RESEARCH UNIT
IN COOPERATION WITH UTAH STATE
UNIVERSITY
J. Alan Wagar
Supported by U. S. Department of Agriculture

Object: To develop techniques for planning outdoor recreation and to develop and manage wild lands in the Intermountain West for recreational use; and to stimulate expansion of graduate research programs related to wild land recreation.

Plan of work: A problem analysis and long range recreation research program for the Northern and Intermountain Regions will be prepared to indicate the present knowledge and research needs for the guidance of public agencies and universities embarking on recreation research programs. Study will be made of (1) techniques for inventorying recreation use and will involve determining data needs in relation to recreation use, a review of measurement techniques developed elsewhere, and recommendations for procedures best suited for national forest use in this locality; (2) the present and potential outdoor recreational needs in Utah, and the opportunities for coordinating recreational programs of local, state, and federal agencies in meeting these needs; and (3) long range opportunities for maintaining and improving the carrying capacity of campsites and other heavily used recreation areas through management of use and cultural measures. Many of the vegetative types in this region are easily damaged by recreational use.

4.14

Utah State University, Agricultural Experiment Station, Logan, Utah
RECREATION USE WITHIN A RECREATION COMPLEX AS DETERMINED BY SAMPLE COUNTS AND CONTINUOUS RECORDS.
S. R. Tocher
Supported by U. S. Department of Agriculture

Objectives: To develop

1. Regression analysis procedures for predicting amounts of recreation use at specific locations within the complex.
2. Regression analysis procedures for predicting patterns of use at specific locations within the complex.

Description of work:

Establish through instrumentation a continuous record of the number of vehicles within a closed recreation complex (Logan Canyon) at any hour. With additional instrumentation and subsampling at specific sites the number of visitors and the activities in which they engage will be recorded. Regression analysis procedures will be used to relate the number of vehicles within the complex at any hour to the amount of use and activity at specific sites.

4.15

University of Vermont
Burlington, Vermont
ECONOMICS OF MULTIPLE USE OF FORESTED LAND
Frederic O. Sargent
Supported by U. S. Department of Agriculture

Objectives: 1. To collect data concerning forest types, ages, and ownerships found in Vermont and relate this data to management costs and returns under selected market conditions. 2. To identify and objectively define classes of multiple uses of forested land. These classes will include but not be limited to (a) forested land and farming, (b) forested land and recreation (fishing, hunting, bridle trails, camping, hiking, and skiing), (c) forested land with rural nonfarm residences, (d) forested land with water conservation areas, (e) forested land with wildlife, and (f) forested land with scenery. (3) The classes and categories of forested land and multiple use of forested land will be mapped in selected sample areas.

Procedure: The pragmatic objective of this project is to supply information which will be useful in regional land use planning. Since multiple resource-multiple purpose land classification systems have not been widely developed and used for planning purposes, a secondary objective of this project will be methodological to develop and improve methods of classifying land with reference to present multiple uses and potential single and multiple uses.

II. PERFORMING ORGANIZATION INDEX

ALABAMA DEPT. OF CONSERVATION ... MONTGOMERY, ALABAMA. 2.1.
ALASKA, U. OF ... COLLEGE, ALASKA. 1.1.
ARIZONA GAME AND FISH DEPT. ... PHOENIX, ARIZONA. 1.2, 1.3.
AUBURN UNIVERSITY ... AUBURN, ALABAMA. 3.1.
AUSTIN STATE COLLEGE ... NACOGDOCHES, TEXAS. 1.72.

CALIF. DEPT. OF FISH AND GAME ... SACRAMENTO, CALIFORNIA. 1.6.
CALIFORNIA, U. OF ... BERKELEY, CALIFORNIA. 3.3.
CALIFORNIA, U. OF ... BERKELY, CALIFORNIA. 3.4.
CALIFORNIA, U. OF ... DAVIS, CALIFORNIA. 1.5.
COLO GAME, FISH AND PARKS DEPT ... DENVER, COLORADO. 1.7, 1.8, 1.9, 1.10, 1.11.
COLO GAME, FISH AND PARKS DEPT ... FORT COLLINS, COLORADO. 1.12.
COLORADO STATE UNIVERSITY ... FORT COLLINS, COLORADO. 3.7, 3.8.
CONNECTICUT, U. OF ... STORRS, CONNECTICUT. 1.14, 2.2.
CORNELL UNIVERSITY ... ITHACA, NEW YORK. 1.51, 1.52, 1.53, 1.54, 2.34, 3.20.

DELAWARE, U. OF ... NEWARK, DELAWARE. 2.5, 2.6.
DEVEREUX SCHOOLS ... DEVON, PENNSYLVANIA. 2.43.

FLA GAME AND FR WATER FISH COM ... TALLAHASSEE, FLORIDA. 1.21, 2.7, 2.8.
FLORIDA, U. OF ... GAINESVILLE, FLORIDA. 3.13.

GEORGIA, U. OF ... ATHENS, GEORGIA. 3.14.

HARVARD UNIVERSITY ... CAMBRIDGE, MASSACHUSETTS. 1.30.

IDAHO, U. OF ... MOSCOW, IDAHO. 4.1.
IOWA STATE UNIVERSITY ... AMES, IOWA. 1.25, 3.15.

KENTUCKY, U. OF ... LEXINGTON, KENTUCKY. 2.10, 3.16.

LOUISIANA STATE UNIVERSITY ... BATON ROUGE, LOUISIANA. 1.28, 2.11.

MAINE, U. OF ... ORONO, MAINE. 2.12.
MASS. GAME AND FISH DEPT. ... WESTBORO, MASSACHUSETTS. 1.31, 2.14, 2.15.
MASSACHUSETTS, U. OF ... AMHERST, MASSACHUSETTS. 1.29, 2.13, 4.4.
MICHIGAN DEPT. OF CONSERVATION ... LANSING, MICHIGAN. 2.22, 2.23, 4.7.
MICHIGAN STATE UNIVERSITY ... EAST LANSING, MICHIGAN. 2.21.
MICHIGAN, U. OF ... ANN ARBOR, MICHIGAN. 1.32, 1.33, 1.34, 1.35, 1.36, 1.37, 1.38, 1.39, 1.40, 1.41, 1.42, 2.16, 2.17, 2.18, 2.19, 2.20, 3.17, 4.5, 4.6.
MIDWEST RESEARCH INSTITUTE ... KANSAS CITY, MISSOURI. 2.26.
MINNESOTA, U. OF ... MINNEAPOLIS, MINNESOTA. 2.24.
MINNESOTA, U. OF ... ST. PAUL, MINNESOTA. 3.18.
MISSOURI, U. OF ... COLUMBIA, MISSOURI. 1.43, 1.44, 2.25.
MONTANA STATE UNIV. ... BOZEMAN, MONTANA. 1.45.
MONTANA STATE UNIVERSITY ... BOZEMAN, MONTANA. 1.46.

NAT. RECREATION AND PARK ASSN. ... NEW YORK, NEW YORK. 1.55, 1.56.
NAT. RIFLE ASSN. OF AMERICA ... WASHINGTON, D. C.. 1.15.
NEVADA FISH AND GAME COMMISS. ... RENO, NEVADA. 1.47, 1.48.
NEVADA, U. OF ... RENO, NEVADA. 2.27.
NEW HAMPSHIRE FISH & GAME DEPT ... CONCORD, NEW HAMPSHIRE. 2.28.
NEW HAMPSHIRE ST. PLAN. PROJ. ... CONCORD, NEW HAMPSHIRE. 1.49.
NEW HAMPSHIRE, U. OF ... DURHAM, NEW HAMPSHIRE. 2.29.
NEW JERSEY DIV. OF FISH & GAME ... TRENTON, NEW JERSEY. 2.30.
NEW MEXICO DEPT OF FISH & GAME ... SANTA FE, NEW MEXICO. 2.31, 2.32.
NEW MEXICO STATE UNIVERSITY ... UNIVERSITY PARK, NEW MEXICO. 2.33.
NEW MEXICO, U. OF ... ALBUQUERQUE, NEW MEXICO. 1.50.
NORTH CAROLINA STATE UNIV. ... RALEIGH, NORTH CAROLINA. 1.58, 3.22.
NORTH CAROLINA, U. OF ... RALEIGH, NORTH CAROLINA. 3.23.
NORTH DAKOTA STATE UNIVERSITY ... FARGO, NORTH DAKOTA. 3.24.

OHIO DIVISION OF WILDLIFE ... ASHLEY, OHIO. 2.36, 2.37.
OHIO DIVISION OF WILDLIFE ... COLUMBUS, OHIO. 2.38, 4.9.
OHIO STATE UNIVERSITY ... COLUMBUS, OHIO. 3.25.
OKLAHOMA DEPT OF WILDLIFE CONS ... OKLAHOMA CITY, OKLAHOMA. 2.39.
OKLAHOMA STATE UNIVERSITY ... STILLWATER, OKLAHOMA. 2.40, 3.26, 4.10.
ONTARIO DEPT. OF HIGHWAYS ... DOWNSVIEW, ONTARIO. 4.11.
OREGON STATE UNIVERSITY ... CORVALLIS, OREGON. 1.60, 2.41, 3.27, 4.12.

PENNSYLVANIA STATE UNIVERSITY ... UNIVERSITY PARK, PENNSYLVANIA. 1.62, 2.44, 3.29.
PUERTO RICO, U. OF ... RIO PIEDRAS, PUERTO RICO. 1.64.
PURDUE UNIVERSITY ... LAFAYETTE, INDIANA. 1.24.

RHODE ISLAND, U. OF ... KINGSTON, RHODE ISLAND. 1.65, 1.66, 2.45, 3.30.

SAN JOSE STATE COLLEGE ... SAN JOSE, CALIFORNIA. 3.6.
SOUTH DAKOTA STATE UNIVERSITY ... BROOKINGS, SOUTH DAKOTA. 1.67, 1.68, 3.31.
SOUTHERN ILLINOIS UNIVERSITY ... CARBONDALE, ILLINOIS. 1.22, 1.23.
SYRACUSE UNIVERSITY ... SYRACUSE, NEW YORK. 3.21.

TENNESSEE GAME AND FISH COMMIS ... NASHVILLE, TENNESSEE. 2.47.
TENNESSEE VALLEY AUTHORITY ... KNOXVILLE, TENNESSEE. 1.69.
TENNESSEE, U. OF ... KNOXVILLE, TENNESSEE. 2.46.
TEXAS A. AND M. COLLEGE ... COLLEGE STATION, TEXAS. 1.71, 3.32.
TEXAS PARKS AND WILDLIFE DEPT. ... AUSTIN, TEXAS. 1.70.

U. S. DEPT. OF AGRICULTURE ... FLAGSTAFF, ARIZONA. 3.2.
U. S. DEPT. OF AGRICULTURE ... BERKELY, CALIFORNIA. 1.4, 3.5.
U. S. DEPT. OF AGRICULTURE ... FORT COLLINS, COLORADO. 1.13.
U. S. DEPT. OF AGRICULTURE ... WASHINGTON, D. C.. 1.16, 1.17, 3.9, 3.10.
U. S. DEPT. OF AGRICULTURE ... BEREA, KENTUCKY. 1.26, 1.27, 4.2.
U. S. DEPT. OF AGRICULTURE ... ST. PAUL, MINNESOTA. 3.19, 4.8.
U. S. DEPT. OF AGRICULTURE ... SYRACUSE, NEW YORK. 1.57.
U. S. DEPT. OF AGRICULTURE ... ASHEVILLE, NORTH CAROLINA. 2.35.
U. S. DEPT. OF AGRICULTURE ... COLUMBUS, OHIO. 1.59.
U. S. DEPT. OF AGRICULTURE ... CORVALLIS, OREGON. 1.61.
U. S. DEPT. OF AGRICULTURE ... PORTLAND, OREGON. 2.42, 3.28.
U. S. DEPT. OF AGRICULTURE ... WARREN, PENNSYLVANIA. 1.63.
U. S. DEPT. OF AGRICULTURE ... LOGAN, UTAH. 4.13.
U. S. DEPT. OF AGRICULTURE ... OGDEN, UTAH. 1.75, 1.76.
U. S. DEPT. OF AGRICULTURE ... LARAMIE, WYOMING. 1.80.
U. S. DEPT. OF INTERIOR ... WASHINGTON, D. C.. 1.18, 1.19, 1.20, 2.3, 2.4, 3.11, 3.12.
U. S. DEPT. OF INTERIOR ... LAUREL, MARYLAND. 4.3.
UTAH STATE UNIVERSITY ... LOGAN, UTAH. 1.73, 1.74, 2.48, 3.33, 3.34, 4.14.

VA. POLYTECHNIC INSTITUTE ... BLACKSBURG, VIRGINIA. 1.77, 3.36.
VERMONT, U. OF ... BURLINGTON, VERMONT. 3.35, 4.15.

WASHINGTON, U. OF ... SEATTLE, WASHINGTON. 1.78.
WEST VIRGINIA UNIVERSITY ... MORGANTOWN, WEST VIRGINIA. 1.79, 2.49.
WISCONSIN, U. OF ... MADISON, WISCONSIN. 2.50, 3.37.

III. PRINCIPAL INVESTIGATOR INDEX

ALDEN, HOWARD R. - 4.1.
ALLEE, DAVID - 1.51, 2.34, 3.20.

BADGER, DANIEL D. - 2.40, 3.26, 4.10.
BIRD, RONALD - 1.44.
BLACK, C. T. - 2.23.
BOND, CARL E. - 1.60.
BOND, ROBERT S. - 2.13.
BONDURANT, JOHN H. - 3.16.
BOYET, WAYNE E. - 3.36.
BREELAND, SAMUEL G. - 1.69.
BREWER, DURWARD - 2.25.
BREWER, MICHAEL F. - 3.4.
BRICKLER, STANLEY K. - 1.22.
BROCKMAN, C. FRANK - 1.78.
BRODERICK, ROBERT - 1.41.
BURACK, DAVID A. - 4.6.
BURKE, HUBERT D. - 1.63.

CALLAHAN, J. C. - 1.24.
CALVIN, LYLE D. - 2.41.
CAMP, HARRY W. - 3.5.
CHRISTENSEN, LINDA - 3.6.
CLARKE, MICHAEL G. - 1.33.
CLONTS, HOWARD A. - 1.77.
COLE, GERALD L. - 2.5, 2.6.
COLLINS, PAUL E. - 1.68.
CONKLIN, H. E. - 1.53.
COPP, JAMES H. - 2.44.
CORCORAN, T. J. - 2.12.
COX, REX W. - 3.24.
CRIDER, E. DALE - 1.21.
CROWTHER, RICHARD - 1.34.
CURTIS, ROBERT D. - 1.2, 1.3.

DAVIS, HUGH C. - 4.8.

EVERSON, ALAN - 2.19.

FABER, LESTER F. - 1.16.
FRIESURGH, SIEBOLT H. - 1.55.
FROMME, JOSEPH T. - 1.20.

GARFIELD, MORTON J. - 3.11, 3.12.
GEORGE, J. L. - 1.62.
GIESBRECHT, HERBERT - 1.40.
GLASS, RONALD J. - 3.21.
GODIN, ALFRED J. - 4.3.
GOULD, ERNEST M., JR. - 1.30.
GRATTO, CHARLES - 1.66.
GRAY, JAMES R. - 2.33.
GREGORY, G. R. - 2.20, 2.21.

HALTER, ALBERT N. - 4.12.
HAMILTON, L. S. - 1.52.
HANCOCK, MARY LOUISE - 1.49.
HANSEN, HENRY L. - 2.24.
HARPER, HAROLD T. - 1.6.
HARRISON, JAMES S. - 2.32.
HARVEY, GEORGE M. - 1.61.
HAUGEN, ARNOLD O. - 1.25.
HAVLICK, SPENSER W. - 1.39.
HELFINSTINE, REX D. - 3.31.
HERRINGTON, ROSCOE B. - 1.75.
HOFFMAN, DONALD M. - 1.8.
HOFFMAN, TERRY W. - 1.38.
HOPPER, RICHARD M. - 1.7.
HORVATH, JOSEPH C. - 2.26.
HUNT, JOHN D. - 3.33, 3.34.

JEFFREY, ARTHUR - 1.65, 3.30.
JOHNSON, E. A. - 1.59.
JOHNSON, HUGH A. - 3.9, 3.10.
JOHNSON, W. M. - 1.80.
JONES, F. K. - 2.7, 2.8.

KEARNS, FRANK W. - 1.1.
KERN, EDWARD E., JR. - 3.1.
KLEIN, W. D. - 1.11.
KREBS, CHARLES F. - 1.42.
KUEHNER, RICHARD A. - 1.37.

LACAILLADE, HAROLD C. - 2.28.
LANDGREN, NORMAN E. - 1.17.
LAVELL, ROBERT J. - 2.4.
LEISEN, ANDREW T. - 1.5.
LEWIS, DARRELL - 1.32.
LINDSAY, JOHN J. - 3.35, 4.4.
LITTLE, JAMES D. - 2.47.
LITTLE, RALPH G. - 2.31.
LOCKARD, DALE - 1.47.
LOOMER, C. W. - 3.37.
LOVE, L. D. - 1.13.
LUCAS, ROBERT C. - 3.19.
LUETH, FRANCIS X. - 2.1.
LUKEN, RALPH - 4.5.

MARTIN, JOE A. - 2.46.
MATTHYSSEE, J. G. - 1.54.
MAY, ROBERT F. - 1.27.
MCCAIG, ROBERT S. - 1.31.
MCCANN, JAMES A. - 1.29.
MCCURDY, DWIGHT R. - 1.23.
MCDERMID, ROBERT W. - 1.28, 2.11.
MCDONOUGH, JAMES J. - 2.14.
MCGANN, MURIEL F. - 1.56.
MCINTOSH, KENNETH D. - 2.49.
MCKAIN, WALTER C. - 1.14, 2.2.
MEIMAN, JAMES R. - 3.8.
MERRIAM, LAWRENCE C., JR. - 1.45, 1.46.
MORRISON, CHARLES C., JR. - 2.3.
MOSS, WILLIAM T. - 2.9,- 3.14.
MURPHREE, C. E. - 3.13.
MURPHY, RICHARD E. - 1.50.
MYERS, GARY T. - 1.9.

NEWBY, FLOYD - 2.18.
NEWPORT, CARL A. - 3.28.
NISBET, WILLIAM A. - 1.48.

ORTH, FRANKLIN L. -1.15.

PARSONS, JAMES J. - 3.3.
PASOUR, E. C. - 3.22.
PASTO, JEROME K. - 3.29.
PATTON, DWIGHT L. - 1.19.
PUSHEE, GEORGE F., JR. - 2.15.

RADER, LYNN - 1.4.
RAUP, PHILIP M. - 3.18.
REIS, JOHN N. - 238.
RIPLEY, T. H. - 2.35.
ROBERTS, LELAND E. - 2.39.
ROGERS, GLENN E. - 1.10, 1.12.
RUSSELL, KENNETH R. - 2.36, 2.37, 4.9.
RYEL, LAWRENCE A. - 2.22, 4.7.

SANTIAGO-VAZQUEZ, ANTONIO - 1.64.
SARGENT, FREDERIC O. - 4.15.
SCHAAF, GENE P. - 2.17.
SCHMEDEMANN, IVAN W. - 3.32.
SCHOENTHAL, NORMAN D. - 1.67.
SHAFER, ELWOOD L., JR. - 1.57.
SHAPLEY, S. PHILIP - 1.35.
SHARIK, TERRY - 1.36.
SHOEMAKER, WILLIAM E. - 2.30.
SITTERLEY, J. H. - 3.25.
SITTON, GORDON R. - 3.27.
SMITH, DWANE Q. - 1.70.
SMITH, ROBERT L. - 1.79.
SMITH, S. C. - 3.7
SPAULDING, IRVING A. - 2.45.
SPIVACK, GEORGE - 2.43.
STANIFORTH, SYDNEY D. - 2.50.
STOLTENBERG, C. H. - 3.15.
STOTT, CHARLES C. - 1.58.

TALHELM, DANIEL - 2.16.
TOCHER, S. R. - 1.73, 1.74, 4.14.
TOLLEY, G. S. - 3.23.

VLASIN, RAYMOND D. - 1.16.

WAGAR, J. ALAN - 4.13.
WELCH, WILLIAM C. - 3.17.
WENGER, WILEY D., JR. - 2.42.
WESTVALD, R. H. - 1.43.
WHALEY, R. S. - 2.48.
WHITTAKER, JAMES C. - 1.26, 4.2.
WOLFE, ROY I. - 4.11.
WOOD, THOMAS J. - 1.72.
WOOTEN, A. B. - 1.71.
WORLEY, DAVID P. - 3.2.
WYCKOFF, J. B. - 2.27

YOUMANS, E. GRANT - 2.10.

IV. SUBJECT INDEX

AESTHETIC EFFECT LANDSCAPING..................FOREST ECOSYSTEM MANAGEMENT AND PROTECTION IN THE NORTHERN ROCKY MOUNTAIN AND INTERMOUNTAIN REGIONS. 1.76.
GUIDES FOR MULTIPLE LAND USE IN THE PACIFIC SOUTHWEST. 1.4.
INCORPORATING SCENIC CONSIDERATIONS INTO HIGHWAY INVESTMENT DECISIONS. 1.35.
SOME EFFECTS OF LANDSCAPE ENHANCEMENT ON TIMBER PRODUCTION. 1.30.
TREE PLANTINGS TO ENHANCE RECREATION POTENTIAL OF SITES ON MISSOURI RIVER RESERVOIRS IN SO. DAKOTA. 1.68.

ALABAMA..........................MARKETING OF OUTDOOR RECREATIONAL SERVICES IN RURAL AREAS OF ALABAMA. 3.1.
STUDY OF THE HUNTING HABITS AND PREFERENCES OF ALABAMA DEER HUNTERS. 2.1.

ALASKA..........................DEVELOPMENT OF WATER RECREATION POTENTIAL OF LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.

ARIZONA..........................COOPERATIVE WATER RESOURCES INVENTORY OF ARIZONA. 1.2.
COSTS AND BENEFITS OF WATERSHED MANAGEMENT IN SOUTHWEST FORESTS. 3.2.
PROPOSED COLORADO RIVER WATER TRANSFER TO CENTRAL ARIZONA IN RELATION TO RECREATION. 1.3.

BATTLEMENT PROJECT..............EFFECTS OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.10.

BOATING..........................COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
CRITERIA FOR EVALUATING THE QUALITY OF WATER BASED RECREATION FACILITIES. 1.58.

CALIFORNIA.......................DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
ECONOMIC ANALYSIS OF MULTIPLE USES OF WILDERNESS AREAS. 3.4.
FEDERAL GRANTS-IN-AID UNDER LAND-WATER CONSERVATION FUND AND SURVEY OF RECREATION EXPENDITURES. 3.6.
GUIDES FOR MULTIPLE LAND USE IN THE PACIFIC SOUTHWEST. 1.4.
HORTICULTURAL METHODS FOR PLANTING, MANAGING AND ENHANCING VEGETATION ON FOREST RECREATION SITES. 1.5.
IMPACT OF WATER EXPORT ON AREA OF ORIGIN, A STUDY OF THE OWENS AND MONO BASINS OF CALIFORNIA. 3.3.
INTERPRETATION OF THE ANCIENT BRISTLECONE PINE FOREST AND THE WHITE MOUNTAINS OF CALIFORNIA. 1.37.
UPLAND GAME INVESTIGATIONS OF LICENSED PHEASANT CLUB MANAGEMENT PROGRAM. 1.6.

CAMPING..........................COMPARISON OF PUBLIC AND PRIVATE CAMPGROUND IN OTTAWA NATIONAL FOREST IN MICHIGAN. 1.33.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.6, 2.29, 2.34.
ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
FACTORS CONTRIBUTING TO MORE EFFICIENT RECREATION PLANNING FOR MICHIGAN STATE FOREST CAMPGROUNDS. 1.42.
FACTORS INFLUENCING CAMPGROUND AND CAMPSITE SELECTION. 2.17.
FACTORS INFLUENCING LENGTH OF STAY OF CAMPERS IN THE WATERLOO RECREATION AREA OF MICHIGAN. 2.16.
INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
NATURE AND DETERMINANTS OF A SUCCESSFUL THERAPEUTIC CAMP EXPERIENCE IN A RESIDENTIAL TREATMENT. 2.43.
PLANNING, DEVELOPMENT, MANAGEMENT AND REHABILITATION IN INTERMOUNTAIN AND NORTHERN REGIONS. 1.75.
PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE GREAT LAKES. 3.19.
SPACIAL RELATIONS AS A GUIDE TO PREDICTING CAMPGROUND USE IN NORTHERN UTAH. 2.48.
THE ECONOMICS OF OUTDOOR RECREATION ENTERPRISES. 3.20.

COLORADO.........................EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.8, 1.9.
EFFECTS OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.10.
IMPACT OF LAND USE ON WATER QUALITY WITHIN A FORESTED MOUNTAIN WATERSHED IN COLORADO. 3.8.
INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
SURVEY OF POTENTIAL PUBLIC WATERFOWL SHOOTING AREAS IN COLORADO. 1.7.
THE ECONOMICS AND ADMINISTRATION OF WATER RESOURCES. 3.7.
THE INFLUENCE OF SPECIAL REGULATIONS ON THE FISH AND FISHERMEN OF THE POUDRE RIVER. 1.11.
WATER RESOURCES DEVELOPMENT IN RELATION TO LAND MANAGEMENT FOR WILDLIFE PRESERVATION. 1.12.

COLORADO RIVER....................PROPOSED COLORADO RIVER WATER TRANSFER TO CENTRAL ARIZONA IN RELATION TO RECREATION. 1.3.

CONNECTICUT.......................CHANGE IN RURAL SOCIAL PATTERNS RELATED TO SUBURBANIZATION AND RECREATIONAL LAND USE IN RURAL AREAS. 1.14.
    CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.2.

COSTILLA PROJECT..................EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.8.

COSTS
  BENEFIT-COST
    PUBLIC LAND USE...............BENEFIT COST ANALYSIS OF ALLOCATION OF LAND BETWEEN URBAN, RECREATIONAL AND AGRICULTURAL USES. 3.23.
    RECREATION DEVELOPMENT......ATTITUDES AND GOALS OF AREA RESIDENTS AND ECONOMY OF PROJECTED PLANS FOR RECREATION DEVELOPMENT. 3.30.
  INVESTMENT
    FOREST RECREATION............DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
  OPERATIONAL.....................RECREATION DEVELOPMENT IN NORTH DAKOTA. 3.24.
    FISHING.......................DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.
    MOBILE RECREATION............INTERNATIONAL SURVEY OF MOBILE RECREATION FACILITIES. 1.55.
    RURAL RECREATION.............ECONOMIC EVALUATION OF RECREATION AS AN ALTERNATIVE USE OF RURAL RESOURCES IN VIRGINIA. 3.36.
      THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS. 3.10.
  RECREATION DEVELOPMENT........RECREATION DEVELOPMENT IN NORTH DAKOTA. 3.24.
      THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS. 3.10.
  ROADWAYS........................ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
  WATERSHED TREATMENT............COSTS AND BENEFITS OF WATERSHED MANAGEMENT IN SOUTHWEST FORESTS. 3.2.
      ECONOMICS OF AGRICULTURAL LAND AND WATER USE, CONSERVATION AND DEVELOPMENT IN OKLAHOMA WATERSHEDS. 3.26.

DELAWARE..........................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.6.
    OUTDOOR RECREATION FACILITY DEMAND IN THE PHILADELPHIA - BALTIMORE - WASHINGTON METROPOLITAN AREA. 2.5.

DEVELOPMENT GUIDES
  FOREST RECREATION..............DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
      ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
      STUDY GROUP IN OUTDOOR RECREATION USE DISTRIBUTION, PREFERENCE AND INTERCHANGEABILITY. 4.8.
  RURAL RECREATION...............DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.
  WATERSHED MANAGEMENT...........COSTS AND BENEFITS OF WATERSHED MANAGEMENT IN SOUTHWEST FORESTS. 3.2.

DISTRICT OF COLUMBIA.............AN ANALYSIS OF THE FEDERAL CREDIT PROGRAMS RELATED TO COMMERCIAL OUTDOOR RECREATION. 3.12.
    ECONOMIC APPRAISAL OF IMPACTS OF URBAN GROWTH ON RURAL LAND USE. 3.9.
    ECONOMIC APPRAISAL OF LOCAL SOIL, WATER AND OTHER RESOURCE ORGANIZATIONS. 1.16.
    FEDERAL AGENCY OUTDOOR RECREATION PLANNING. 1.19.
    INVENTORY AND DIGEST OF OUTDOOR RECREATION RELATED FEDERAL PROGRAMS. 1.20.
    NATIONAL LAND USE INVENTORY BY STATES AND REGIONS. 1.17.
    PROJECTING RECREATION USE WITHIN AN HOUR AND A HALF DRIVE OF A MAIN RIVER COURSE. 2.4.
    STUDY OF FISCAL YEAR 1967 FEDERAL OUTDOOR RECREATION BUDGET. 3.11.
    STUDY OF PRIVATE OUTDOOR RECREATION ENTERPRISES. 1.18.
    THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS. 3.10.
    THE 1965 NATIONAL SURVEY OF RECREATION PARTICIPANTS. 2.3.

EASTDALE RESERVOIR...............EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.8.

ECOLOGY...........................SOME ECOLOGICAL IMPLICATIONS OF THE MANAGEMENT OF ITASCA STATE PARK TO MEET RECREATIONAL OBJECTIVES. 2.24.

ECONOMIC IMPACT
  FARM RECREATION................DEMAND ANALYSIS OF SELECTED RECREATIONAL FACILITIES ON NO. CAROLINA FARMS. 3.22.
      ECONOMIC APPRAISAL OF OUTDOOR RECREATIONAL ENTERPRISES ON FARM LANDS IN SOUTHEASTERN OHIO. 3.25.
  FISHING.........................COOPERATIVE WATER RESOURCES INVENTORY OF ARIZONA. 1.2.
      CREEL CENSUS AND ECONOMIC SURVEY OF CATCH IN DALE HOLLOW TAILWATER, TENNESSEE. 2.47.
      EVALUATION OF HUNTING AND FISHING DEMANDS IN NEW HAMPSHIRE BY A MAIL QUESTIONNAIRE SURVEY. 2.28.
  FOREST RECREATION..............DEVELOPMENT OF RHODE ISLAND FORESTED LANDS FOR RECREATION AND OTHER USES. 1.66.
      FOREST RECREATION INVESTMENT OPPORTUNITIES IN IOWA. 3.15.
      PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.
      RECREATIONAL USE OF FOREST LANDS RELATED TO MANAGEMENT OF TIMBER PRODUCTION IN WESTERN WASHINGTON. 1.78.
  HUNTING.........................COOPERATIVE WATER RESOURCES INVENTORY OF ARIZONA. 1.2.

EVALUATION OF HUNTING AND FISHING DEMANDS IN NEW HAMPSHIRE BY A MAIL QUESTIONNAIRE SURVEY. 2.28.
LAND ALLOCATION................ALLOCATION MODEL FOR THE PROGRAMMING, PLANNING AND BUDGET SYSTEM OF THE BUREAU OF LAND MANAGEMENT. 4.5.
BENEFIT COST ANALYSIS OF ALLOCATION OF LAND BETWEEN URBAN, RECREATIONAL AND AGRICULTURAL USES. 3.23.
PRODUCTION POSSIBILITY RELATIONS FOR LAND WITH RECREATION AND OTHER POTENTIAL USES. 4.6.
RECREATION DEVELOPMENT.........ATTITUDES AND GOALS OF AREA RESIDENTS AND ECONOMY OF PROJECTED PLANS FOR RECREATION DEVELOPMENT. 3.30.
DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.
ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION IN SMALL WATERSHEDS OF PENNSYLVANIA. 3.29.
EFFECT OF PUBLIC RECREATIONAL DEVELOPMENT UPON SELECTED PRIVATE LANDS IN MICHIGAN UPPER PENINSULA. 1.32.
OPEN SPACE RESERVATIONS IN SUBDIVISIONS-A CASE STUDY IN PROVIDING LOCAL RECREATION LANDS. 1.38.
RECREATION DEVELOPMENT IN NORTH DAKOTA. 3.24.
THE EFFECT OF RECREATIONAL DEVELOPMENT ON LAKE OF EGYPT UPON THE LAND AND WATER. 1.22.
USE OF STREAM RIPARIAN LAND FOR RECREATION AS A SOURCE OF INCOME FOR RURALNORTHERN FLORIDA. 3.13.
REGIONAL DEVELOPMENT...........FACTORS AFFECTING RESOURCE USE AND INCOME POTENTIAL IN THE OZARKS OF MISSOURI. 1.44.
URBANIZATION...................ECONOMIC APPRAISAL OF IMPACTS OF URBAN GROWTH ON RURAL LAND USE. 3.9.
WATER RESOURCES DEVELOPMENT...IMPACT OF WATER EXPORT ON AREA OF ORIGIN, A STUDY OF THE OWENS AND MONO BASINS OF CALIFORNIA. 3.3.
THE ECONOMICS AND ADMINISTRATION OF WATER RESOURCES. 3.7.

ECONOMIC STUDIES
ADVERTISING....................OUTDOOR RECREATION MOTIFS IN MAGAZINE ADVERTISEMENTS. 3.17.
CAMPGROUNDS....................THE ECONOMICS OF OUTDOOR RECREATION ENTERPRISES. 3.20.
FARM-OPERATED RECREATION......DEMAND ANALYSIS OF SELECTED RECREATIONAL FACILITIES ON NO. CAROLINA FARMS. 3.22.
FOREST RECREATION AREAS.......DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
IMPACT OF LAND USE ON WATER QUALITY WITHIN A FORESTED MOUNTAIN WATERSHED IN COLORADO. 3.8.
PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
RECREATIONAL OPPORTUNITIES AND RESOURCES ON SMALL WOODLANDS. 1.59.
SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE GREAT LAKES. 3.19.
GOVERNMENT SUPPORT.............FEDERAL GRANTS-IN-AID UNDER LAND-WATER CONSERVATION FUND AND SURVEY OF RECREATION EXPENDITURES. 3.6.
GOVERNMENT AID ON PRIVATE RECREATION DEVELOPMENTS IN GEORGIA. 3.14.
STUDY OF FISCAL YEAR 1967 FEDERAL OUTDOOR RECREATION BUDGET. 3.11.
HIGHWAYS.......................INCORPORATING SCENIC CONSIDERATIONS INTO HIGHWAY INVESTMENT DECISIONS. 1.35.
LAND LEASING...................AMOUNT AND KIND OF PRIVATELY OWNED LAND BEING LEASED FOR OUTDOOR RECREATION. 1.26.
PROVISIONS IN LEASING CONTRACTS AND RENTAL RATES PAID FOR RURAL LAND IN ILLINOIS. 1.23.
LAND USE.......................BASIC LAND ECONOMIC DATA FOR SELECTED AREAS OF NORTHERN WISCONSIN. 3.37.
ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION IN SMALL WATERSHEDS OF PENNSYLVANIA. 3.29.
EVALUATION OF LAND USE PATTERNS IN EXPANDING METROPOLITAN REGIONS IN VIRGINIA. 1.77.
THE UTILIZATION OF RURAL LAND IN TOMPKINS COUNTY, NEW YORK. 1.53.
PRIVATE INVESTMENTS............AN ECONOMIC ANALYSIS OF THE DEMAND FOR LAND AND WATER-BASED OUTDOOR RECREATION IN TEXAS. 3.32.
DEVELOPMENT OF A METHOD FOR EVALUATING POTENTIAL RECREATION USE ON ALL, PRIVATE WOODLANDS. 4.2.
ECONOMIC EVALUATION OF RECREATION AS AN ALTERNATIVE USE OF RURAL RESOURCES IN VIRGINIA. 3.36.
INCOME-PRODUCING OUTDOOR RECREATION ON PRIVATE LANDS. 3.35.
PRIVATE INVESTMENT IN OUTDOOR RECREATION IN THE NEW YORK-NEW ENGLAND AREA. 3.21.
RECREATIONAL DEVELOPMENT IN BEAR LAKE AREA IN UTAH. 3.33.
STUDY OF PRIVATE OUTDOOR RECREATION ENTERPRISES. 1.18.
PUBLIC LAND....................ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
SURVEY OF POTENTIAL PUBLIC WATERFOWL SHOOTING AREAS IN COLORADO. 1.7.
RURAL RECREATION...............ECONOMIC IMPORTANCE OF RECREATIONAL FACILITIES AND RELATED SERVICES TO KENTUCKY FARMERS. 3.16.
MARKETING OF OUTDOOR RECREATIONAL SERVICES IN RURAL AREAS OF ALABAMA. 3.1.
THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS. 3.10.
WATER RECREATION...............DEMAND FOR WATER BASED RECREATIONAL ACTIVITIES IN NEVADA. 2.27.
WATER RESOURCES................COSTS AND BENEFITS OF WATERSHED MANAGEMENT IN SOUTHWEST FORESTS. 3.2.
ECONOMIC POTENTIALS FOR WATER RESOURCES DEVELOPMENT IN SOUTH DAKOTA. 3.31.
ECONOMIC PROBLEMS IN THE USE, ALLOCATION, REGULATION, AND PRICING OF WATER IN MINNESOTA. 3.18.
ECONOMICS OF AGRICULTURAL LAND AND WATER USE, CONSERVATION AND DEVELOPMENT IN OKLAHOMA WATERSHEDS. 3.26.
SIMULATION AS A MEANS OF STUDYING RESOURCE ALLOCATIONS. 4.12.
USE AND DISTRIBUTION OF FRESH WATER RESOURCES IN RHODE ISLAND. 1.65.
WILLAMETTE BASIN DEVELOPMENT STUDY IN OREGON. 3.27.

WILDERNESS RECREATION AREAS...ECONOMIC ANALYSIS OF MULTIPLE USES OF WILDERNESS AREAS. 3.4.
  RECREATIONAL USE OF WILDERNESS AREAS AND REQUIREMENTS IN RELATION TO OTHER FOREST USES. 2.42.
  WILDLAND RECREATIONAL MANAGEMENT IN PENNSYLVANIA QUEHANNA WILDERNESS AREA. 1.62.

ENGINEERING STUDIES..............USE AND DISTRIBUTION OF FRESH WATER RESOURCES IN RHODE ISLAND. 1.65.

FARM RECREATION..................DEMAND ANALYSIS OF SELECTED RECREATIONAL FACILITIES ON NO. CAROLINA FARMS. 3.22.
  DEMAND OF THE METROPOLITAN POPULATION IN MISSOURI FOR OUTDOOR RECREATION FACILITIES IN RURAL AREAS. 2.25.
  DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.
  ECONOMIC APPRAISAL OF OUTDOOR RECREATIONAL ENTERPRISES ON FARM LANDS IN SOUTHEASTERN OHIO. 3.25.
  ECONOMIC IMPORTANCE OF RECREATIONAL FACILITIES AND RELATED SERVICES TO KENTUCKY FARMERS. 3.16.
  EVALUATION OF LAND USE PATTERNS IN EXPANDING METROPOLITAN REGIONS IN VIRGINIA. 1.77.

FIRE PREVENTION..................FOREST FIRE PREVENTION THROUGH PUBLIC INTEREST IN GAME AND MANAGEMENT IN SOUTHERN WEST VIRGINIA. 1.79.
  RECREATIONAL USE OF WILDERNESS AREAS AND REQUIREMENTS IN RELATION TO OTHER FOREST USES. 2.42.

FISHING..........................ANALYSIS OF THE CHARACTERISTICS AND DISTRIBUTION OF THE OHIO FISHERMAN POPULATION. 2.38.
  COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
  CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
  CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12, 2.13.
  COSTS AND BENEFITS OF WATERSHED MANAGEMENT IN SOUTHWEST FORESTS. 3.2.
  CREEL CENSUS AND USAGE STUDIES ON UTE, LAKE VAN, AND CHICOSA LAKE IN NEW MEXICO. 2.32.
  CRITERIA FOR EVALUATING THE QUALITY OF WATER BASED RECREATION FACILITIES. 1.58.
  DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.
  DEVELOPMENT OF WATER RECREATION POTENTIAL OF LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.
  ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION IN SMALL WATERSHEDS OF PENNSYLVANIA. 3.29.
  ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
  INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
  LEASED PUBLIC HUNTING AREA UTILIZATION BY PERMIT HOLDERS. 2.36.
  MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
  OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
  PLANNING, DEVELOPMENT, MANAGEMENT AND REHABILITATION IN INTERMOUNTAIN AND NORTHERN REGIONS. 1.75.
  PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
  SURVEY AND EVALUATION OF SMALL ARTIFICIAL PONDS AND FISH MANAGEMENT. 1.29.
  SURVEY OF EFFORT AND SUCCESS BY OREGON ANGLERS. 2.41.
  THE INFLUENCE OF SPECIAL REGULATIONS ON THE FISH AND FISHERMEN OF THE POUDRE RIVER. 1.11.
  WHEELER DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NEVADA. 1.47.

FLIES............................BIOLOGY AND CONTROL OF FLIES TROUBLESOME TO VISITORS OF RESORT AREAS AND PARKS IN NEW YORK. 1.54.

FLORIDA..........................MOSQUITO CONTROL PROGRAM IN ST. JOHNS, BREVARD AND INDIAN RIVER COUNTIES OF FLORIDA. 1.21.
  TO DETERMINE THE COUNTY OF RESIDENCE OF THE HUNTERS CHECKED ON THE MANAGEMENT AREAS IN FLORIDA. 2.8.
  TO MEASURE AND EVALUATE STATEWIDE AND SECTIONAL SPORTSMAN OPINION IN FLORIDA. 2.7.
  USE OF STREAM RIPARIAN LAND FOR RECREATION AS A SOURCE OF INCOME FOR RURALNORTHERN FLORIDA. 3.13.

FOREST-ORIENTED RECREATION......A STUDY OF RECREATION USE OF FOREST LANDS IN MONTANA. 1.45.
  ANALYSIS OF FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES. 2.20.
  CAUSE AND PREVENTION OF DAMAGE BY DISEASE TO FOREST RECREATION AREAS. 1.61.
  COMBINATION OF OUTDOOR RECREATION AND ALTERNATIVE ENTERPRISES ON INDIANA PRIVATE PROPERTY. 1.24.
  CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
  CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.2, 2.6, 2.12, 2.13, 2.29.
  DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
  DEVELOPMENT OF RHODE ISLAND FORESTED LANDS FOR RECREATION AND OTHER USES. 1.66.

ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
EFFECT OF STATE FORESTS AND PARKS ON PUBLIC RECREATIONAL USE OF PRIVATE FORESTS IN LOUISIANA. 2.11.
ESTIMATING RECREATIONAL VISITS AND USE OF UNATTENDED WILDLAND RECREATION SITES IN IDAHO. 4.1.
FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES IN MICHIGAN. 2.21.
FOREST RECREATION INVESTMENT OPPORTUNITIES IN IOWA. 3.15.
GUIDES FOR MULTIPLE LAND USE IN THE PACIFIC SOUTHWEST. 1.4.
IMPACT OF LAND USE ON WATER QUALITY WITHIN A FORESTED MOUNTAIN WATERSHED IN COLORADO. 3.8.
INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
PLANNING, DEVELOPMENT, MANAGEMENT AND REHABILITATION IN INTERMOUNTAIN AND NORTHERN REGIONS. 1.75.
PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.
PRIVATE INVESTMENT IN OUTDOOR RECREATION IN THE NEW YORK-NEW ENGLAND AREA. 3.21.
RECREATIONAL OPPORTUNITIES AND RESOURCES ON SMALL WOODLANDS. 1.59.
RECREATIONAL USE OF FOREST LANDS RELATED TO MANAGEMENT OF TIMBER PRODUCTION IN WESTERN WASHINGTON. 1.78.
REDUCTION IN DAMAGES TO FORESTS BY IMPROVING MINING AND REHABILITATION PROCEDURES. 1.27.
SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE GREAT LAKES. 3.19.
SOME ECOLOGICAL IMPLICATIONS OF THE MANAGEMENT OF ITASCA STATE PARK TO MEET RECREATIONAL OBJECTIVES. 2.24.
STUDY GROUP IN OUTDOOR RECREATION USE DISTRIBUTION, PREFERENCE AND INTERCHANGEABILITY. 4.8.
THE CARRYING CAPACITY OF DIFFERENT FOREST SITES FOR DIFFERENT RECREATIONAL USES IN MISSOURI. 1.43.
THE ROLE OF LARGE PRIVATE FOREST OWNERSHIP IN OUTDOOR RECREATION IN LOUISIANA. 1.28.

GEORGIA..........................GOVERNMENT AID ON PRIVATE RECREATION DEVELOPMENTS IN GEORGIA. 3.14.

GOVERNMENT PROGRAMS
  CONTROL..........................EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.8, 1.9, 1.10
  FEDERAL SUPPORT..................AN ANALYSIS OF THE FEDERAL CREDIT PROGRAMS RELATED TO COMMERCIAL OUTDOOR RECREATION. 3.12.
    FEDERAL AGENCY OUTDOOR RECREATION PLANNING. 1.19.
    FEDERAL GRANTS-IN-AID UNDER LAND-WATER CONSERVATION FUND AND SURVEY OF RECREATION EXPENDITURES. 3.6.
    INVENTORY AND DIGEST OF OUTDOOR RECREATION RELATED FEDERAL PROGRAMS. 1.20.
    STUDY OF FISCAL YEAR 1967 FEDERAL OUTDOOR RECREATION BUDGET. 3.11.
    TECHNIQUES FOR PLANNING, DEVELOPMENT AND MANAGEMENT OF WESTERN INTERMOUNTAIN WILD LANDS. 4.13.
  LAND USE.........................DEVELOPMENT OF WATER RECREATION POTENTIAL OF LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.
  TRI-LEVEL SUPPORT................GOVERNMENT AID ON PRIVATE RECREATION DEVELOPMENTS IN GEORGIA. 3.14.

GRAND MESA PROJECT...............EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.9.

HIGHWAYS.........................BENEFIT COST ANALYSIS OF ALLOCATION OF LAND BETWEEN URBAN, RECREATIONAL AND AGRICULTURAL USES. 3.23.
  CHANGE IN RURAL SOCIAL PATTERNS RELATED TO SUBURBANIZATION AND RECREATIONAL LAND USE IN RURAL AREAS. 1.14.

HIKING...........................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.2.
  ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.

HISTORY..........................BASIC LAND ECONOMIC DATA FOR SELECTED AREAS OF NORTHERN WISCONSIN. 3.37.
  IMPACT OF WATER EXPORT ON AREA OF ORIGIN, A STUDY OF THE OWENS AND MONO BASINS OF CALIFORNIA. 3.3.

HUNTING..........................AVAILABILITY OF PRIVATE LAND FOR PUBLIC HUNTING IN ANGELINA COUNTY, TEXAS. 1.72.
  COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
  CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
  CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12, 2.13.
  COSTS AND BENEFITS OF WATERSHED MANAGEMENT IN SOUTHWEST FORESTS. 3.2.
  DETERMINATION OF DEER HUNTING PRESSURE IN MASSACHUSETTS. 2.14.
  ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION IN SMALL WATERSHEDS OF PENNSYLVANIA. 3.29.
  ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
  EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.8, 1.9.

(CONTINUED)

EVALUATION OF PUBLIC USE OF STATE GAME AREAS IN SOUTHERN MICHIGAN. 2.23.
EVALUATION OF WILDLIFE UTILIZATION AND HUNTER SUCCESS USING COLLIERS MILLS TRACT IN NEW JERSEY. 2.30.
FOREST FIRE PREVENTION THROUGH PUBLIC INTEREST IN GAME AND MANAGEMENT IN SOUTHERN WEST VIRGINIA. 1.79.
INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
LEASED PUBLIC HUNTING AREA UTILIZATION BY PERMIT HOLDERS. 2.36.
MAIL OR INTERVIEW SURVEYS TO DETERMINE HUNTER ATTITUDES IN MICHIGAN. 2.22.
MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
PUBLIC HUNTING AREA UTILIZATION SURVEY. 2.37.
SPY-BLIND STUDY TO LEARN THE ACCURACY WITH WHICH HUNTERS REPORT INFORMATION THROUGH MAIL SURVEYS. 4.3.
STUDY OF THE HUNTING HABITS AND PREFERENCES OF ALABAMA DEER HUNTERS. 2.1.
TELEPHONE SURVEY OF GAME HARVEST AND HUNTING PRESSURE IN OHIO. 4.9.
UPLAND GAME INVESTIGATIONS OF LICENSED PHEASANT CLUB MANAGEMENT PROGRAM. 1.6.
UTILIZATION OF WILDLIFE MANAGEMENT AREAS IN MASSACHUSETTS. 2.15.
WATER RESOURCES DEVELOPMENT IN RELATION TO LAND MANAGEMENT FOR WILDLIFE PRESERVATION. 1.12.

IDAHO..........................ESTIMATING RECREATIONAL VISITS AND USE OF UNATTENDED WILDLAND RECREATION SITES IN IDAHO. 4.1.

ILLINOIS.......................PROVISIONS IN LEASING CONTRACTS AND RENTAL RATES PAID FOR RURAL LAND IN ILLINOIS. 1.23.
THE EFFECT OF RECREATIONAL DEVELOPMENT ON LAKE OF EGYPT UPON THE LAND AND WATER. 1.22.

INDIANA........................COMBINATION OF OUTDOOR RECREATION AND ALTERNATIVE ENTERPRISES ON INDIANA PRIVATE PROPERTY. 1.24.

IOWA...........................COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
FOREST RECREATION INVESTMENT OPPORTUNITIES IN IOWA. 3.15.

KANSAS.........................PRESENT AND FUTURE DEMAND CALCULATION FOR OUTDOOR RECREATION IN THE STATE OF KANSAS. 2.26.

KENTUCKY.......................AMOUNT AND KIND OF PRIVATELY OWNED LAND BEING LEASED FOR OUTDOOR RECREATION. 1.26.
DEVELOPMENT OF A METHOD FOR EVALUATING POTENTIAL RECREATION USE ON ALL, PRIVATE WOODLANDS. 4.2.
ECONOMIC IMPORTANCE OF RECREATIONAL FACILITIES AND RELATED SERVICES TO KENTUCKY FARMERS. 3.16.
PLANS AND EXPECTATIONS FOR OLD AGE. 2.10.
REDUCTION IN DAMAGES TO FORESTS BY IMPROVING MINING AND REHABILITATION PROCEDURES. 1.27.

LABOR..........................DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.

LAND DAMAGE
  NATIONAL CATASTROPHE..........IMPLICATIONS OF WILDERNESS VALUES IN THE NATIONAL PARK SYSTEM. 1.41.
  USE
    CAMPGROUND..................IMPACT OF RECREATIONISTS ON VEGETATION AND SOILS IN SELECTED SITES OF UTAH. 1.73.
    FOREST AREAS................CHANGES IN CAMPGROUND VEGETATION AND SOILS AS RELATED TO FERTILIZER, WATER AND VISITOR USE. 1.74.
    LAKE AREAS..................THE EFFECT OF RECREATIONAL DEVELOPMENT ON LAKE OF EGYPT UPON THE LAND AND WATER. 1.22.

LAND MANAGEMENT
  ALTERNATIVE USE...............ALLOCATION MODEL FOR THE PROGRAMMING, PLANNING AND BUDGET SYSTEM OF THE BUREAU OF LAND MANAGEMENT. 4.5.
  ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
  INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
  PRODUCTION POSSIBILITY RELATIONS FOR LAND WITH RECREATION AND OTHER POTENTIAL USES. 4.6.
  RECREATIONAL USE OF FOREST LANDS RELATED TO MANAGEMENT OF TIMBER PRODUCTION IN WESTERN WASHINGTON. 1.78.
  SOME EFFECTS OF LANDSCAPE ENHANCEMENT ON TIMBER PRODUCTION. 1.30.
  USE OF STREAM RIPARIAN LAND FOR RECREATION AS A SOURCE OF INCOME FOR RURALNORTHERN FLORIDA. 3.13.
  FOREST AREAS
    FIRE PREVENTION.............FOREST FIRE PREVENTION THROUGH PUBLIC INTEREST IN GAME AND MANAGEMENT IN SOUTHERN WEST VIRGINIA. 1.79.
    SILVICULTURE................CAUSE AND PREVENTION OF DAMAGE BY DISEASE TO FOREST RECREATION AREAS. 1.61.
    COSTS AND BENEFITS OF WATERSHED MANAGEMENT IN SOUTHWEST FORESTS. 3.2.
    DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
    ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
    FOREST ECOSYSTEM MANAGEMENT AND PROTECTION IN THE NORTHERN ROCKY MOUNTAIN AND INTERMOUNTAIN REGIONS. 1.76.
    GUIDES FOR MULTIPLE LAND USE IN THE PACIFIC SOUTHWEST. 1.4.
    IMPACT OF RECREATIONISTS ON VEGETATION AND SOILS IN SELECTED SITES OF UTAH. 1.73.

INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.

PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.

PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.

RECREATIONAL USE OF FOREST LANDS RELATED TO MANAGEMENT OF TIMBER PRODUCTION IN WESTERN WASHINGTON. 1.78.

SOME EFFECTS OF LANDSCAPE ENHANCEMENT ON TIMBER PRODUCTION. 1.30.

WILDLAND RECREATIONAL MANAGEMENT IN PENNSYLVANIA QUEHANNA WILDERNESS AREA. 1.62.

VEGETATION....................CHANGES IN CAMPGROUND VEGETATION AND SOILS AS RELATED TO FERTILIZER, WATER AND VISITOR USE. 1.74.

HORTICULTURAL METHODS FOR PLANTING, MANAGING AND ENHANCING VEGETATION ON FOREST RECREATION SITES. 1.5.

MANAGEMENT OF MOUNTAIN RANGELANDS WITH EMPHASIS ON ALPINE AND SUBALPINE TYPES IN WYOMING. 1.80.

PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.

PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.

REDUCTION IN DAMAGES TO FORESTS BY IMPROVING MINING AND REHABILITATION PROCEDURES. 1.27.

SOME ECOLOGICAL IMPLICATIONS OF THE MANAGEMENT OF ITASCA STATE PARK TO MEET RECREATIONAL OBJECTIVES. 2.24.

MULTIPLE USE....................FOREST ECOSYSTEM MANAGEMENT AND PROTECTION IN THE NORTHERN ROCKY MOUNTAIN AND INTERMOUNTAIN REGIONS. 1.76.

GUIDES FOR MULTIPLE LAND USE IN THE PACIFIC SOUTHWEST. 1.4.

IMPACT OF LAND USE ON WATER QUALITY WITHIN A FORESTED MOUNTAIN WATERSHED IN COLORADO. 3.8.

NATIONAL LAND USE INVENTORY BY STATES AND REGIONS. 1.17.

PLANNING, DEVELOPMENT, MANAGEMENT AND REHABILITATION IN INTERMOUNTAIN AND NORTHERN REGIONS. 1.75.

WILDERNESS AREAS...............A STUDY OF STANDARDS AND MANAGEMENT OF WILDERNESS LANDS IN MONTANA. 1.46.

RECREATIONAL USE OF WILDERNESS AREAS AND REQUIREMENTS IN RELATION TO OTHER FOREST USES. 2.42.

TECHNIQUES FOR PLANNING, DEVELOPMENT AND MANAGEMENT OF WESTERN INTERMOUNTAIN WILD LANDS. 4.13.

WILDLIFE PRESERVATION.........WATER RESOURCES DEVELOPMENT IN RELATION TO LAND MANAGEMENT FOR WILDLIFE PRESERVATION. 1.12.

LAND RESOURCES
ALTERNATIVE USE................BENEFIT COST ANALYSIS OF ALLOCATION OF LAND BETWEEN URBAN, RECREATIONAL AND AGRICULTURAL USES. 3.23.

COMBINATION OF OUTDOOR RECREATION AND ALTERNATIVE ENTERPRISES ON INDIANA PRIVATE PROPERTY. 1.24.

DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.

ECONOMIC APPRAISAL OF IMPACTS OF URBAN GROWTH ON RURAL LAND USE. 3.9.

FEASIBILITY OF INTEGRATING SOCIAL AND PHYSICAL FACTORS OF LAND USE IN A RECREATION PLANNING PROCESS. 1.40.

OPEN SPACE RESERVATIONS IN SUBDIVISIONS-A CASE STUDY IN PROVIDING LOCAL RECREATION LANDS. 1.38.

THE UTILIZATION OF RURAL LAND IN TOMPKINS COUNTY, NEW YORK. 1.53.

WATER RESOURCES DEVELOPMENT IN RELATION TO LAND MANAGEMENT FOR WILDLIFE PRESERVATION. 1.12.

CAMPGROUND.....................COMPARISON OF PUBLIC AND PRIVATE CAMPGROUND IN OTTAWA NATIONAL FOREST IN MICHIGAN. 1.33.

FACTORS INFLUENCING CAMPGROUND AND CAMPSITE SELECTION. 2.17.

FACTORS INFLUENCING LENGTH OF STAY OF CAMPERS IN THE WATERLOO RECREATION AREA OF MICHIGAN. 2.16.

THE PRIVATELY OWNED CAMPGROUNDS OF NEW HAMPSHIRE. 1.49.

FOREST AREAS...................DEVELOPMENT OF A METHOD FOR EVALUATING POTENTIAL RECREATION USE ON ALL, PRIVATE WOODLANDS. 4.2.

DEVELOPMENT OF RHODE ISLAND FORESTED LANDS FOR RECREATION AND OTHER USES. 1.66.

ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.

ESTABLISHING AND DEVELOPING THE SELF-GUIDING TRAIL AS AN INTERPRETIVE MEDIA IN URBAN NATURAL AREAS. 1.36.

FACTORS CONTRIBUTING TO MORE EFFICIENT RECREATION PLANNING FOR MICHIGAN STATE FOREST CAMPGROUNDS. 1.42.

INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.

INTERPRETATION OF THE ANCIENT BRISTLECONE PINE FOREST AND THE WHITE MOUNTAINS OF CALIFORNIA. 1.37.

RECREATIONAL USE OF INDUSTRIAL FOREST LANDS IN CERTAIN COUNTIES OF MICHIGAN UPPER PENINSULA. 1.34.

SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE GREAT LAKES. 3.19.

THE CARRYING CAPACITY OF DIFFERENT FOREST SITES FOR DIFFERENT RECREATIONAL USES IN MISSOURI. 1.43.

THE ROLE OF LARGE PRIVATE FOREST OWNERSHIP IN OUTDOOR RECREATION IN LOUISIANA. 1.28.

HUNTING AREAS..................AVAILABILITY OF PRIVATE LAND FOR PUBLIC HUNTING IN ANGELINA COUNTY, TEXAS. 1.72.

EVALUATION OF PUBLIC USE OF STATE GAME AREAS IN SOUTHERN MICHIGAN. 2.23.

LEASED PUBLIC HUNTING AREA UTILIZATION BY PERMIT HOLDERS. 2.36.

PUBLIC HUNTING AREA UTILIZATION SURVEY. 2.37.

INVENTORY......................AMOUNT AND KIND OF PRIVATELY OWNED LAND BEING LEASED FOR OUTDOOR RECREATION. 1.26.

ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION IN SMALL WATERSHEDS OF PENNSYLVANIA. 3.29.

(CONTINUED)

ECONOMIC APPRAISAL OF IMPACTS OF URBAN GROWTH ON RURAL LAND USE. 3.9.
EFFECT OF PUBLIC RECREATIONAL DEVELOPMENT UPON SELECTED PRIVATE LANDS IN MICHIGAN UPPER PENINSULA. 1.32.
NATIONAL LAND USE INVENTORY BY STATES AND REGIONS. 1.17.
PUBLIC ACCESS SURVEY OF PUBLIC WATERS IN REGION 2-A OF TEXAS. 1.70.
USE OF AERIAL PHOTOGRAPHS TO LOCATE POTENTIAL OUTDOOR RECREATION AREAS. 4.4.
1965 RECREATION AND PARK YEARBOOK. 1.56.

LAKE AREAS....................RECREATIONAL DEVELOPMENT IN BEAR LAKE AREA IN UTAH. 3.33.

MULTIPLE USE..................ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
EVALUATION OF LAND USE PATTERNS IN EXPANDING METROPOLITAN REGIONS IN VIRGINIA. 1.77.
UTILIZATION OF WILDLIFE MANAGEMENT AREAS IN MASSACHUSETTS. 2.15.
WILDLAND RECREATIONAL MANAGEMENT IN PENNSYLVANIA QUEHANNA WILDERNESS AREA. 1.62.
GUIDES FOR MULTIPLE LAND USE IN THE PACIFIC SOUTHWEST. 1.4.

PUBLIC WETLANDS...............SURVEY OF POTENTIAL PUBLIC WATERFOWL SHOOTING AREAS IN COLORADO. 1.7.

RIPARIAN LAND.................USE OF STREAM RIPARIAN LAND FOR RECREATION AS A SOURCE OF INCOME FOR RURALNORTHERN FLORIDA. 3.13.

RURAL AREAS...................PROVISIONS IN LEASING CONTRACTS AND RENTAL RATES PAID FOR RURAL LAND IN ILLINOIS. 1.23.
THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS. 3.10.
THE UTILIZATION OF RURAL LAND IN TOMPKINS COUNTY, NEW YORK. 1.53.

URBAN EXPANSION...............EVALUATION OF LAND USE PATTERNS IN EXPANDING METROPOLITAN REGIONS IN VIRGINIA. 1.77.

WILDERNESS AREAS..............A STUDY OF STANDARDS AND MANAGEMENT OF WILDERNESS LANDS IN MONTANA. 1.46.
ECONOMIC ANALYSIS OF MULTIPLE USES OF WILDERNESS AREAS. 3.4.
IMPLICATIONS OF WILDERNESS VALUES IN THE NATIONAL PARK SYSTEM. 1.41.
WILDERNESS AREA CLASSIFICATION AND PROBLEMS OF PRIVATE USE AND LAND OWNERSHIP IN WILDERNESS AREAS. 1.50.

LANDOWNERS....................AVAILABILITY OF PRIVATE LAND FOR PUBLIC HUNTING IN ANGELINA COUNTY, TEXAS. 1.72.
DEVELOPMENT OF RHODE ISLAND FORESTED LANDS FOR RECREATION AND OTHER USES. 1.66.

LEGAL ASPECTS
FEDERAL AUTHORITY.............INVENTORY AND DIGEST OF OUTDOOR RECREATION RELATED FEDERAL PROGRAMS. 1.20.
LAND..........................GOVERNMENT AID ON PRIVATE RECREATION DEVELOPMENTS IN GEORGIA. 3.14.
PROVISIONS IN LEASING CONTRACTS AND RENTAL RATES PAID FOR RURAL LAND IN ILLINOIS. 1.23.
LICENSED PHEASANT CLUBS.......UPLAND GAME INVESTIGATIONS OF LICENSED PHEASANT CLUB MANAGEMENT PROGRAM. 1.6.
WATER RIGHTS..................ECONOMIC PROBLEMS IN THE USE, ALLOCATION, REGULATION, AND PRICING OF WATER IN MINNESOTA. 3.18.
OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
THE ECONOMICS AND ADMINISTRATION OF WATER RESOURCES. 3.7.

LOUISIANA.....................EFFECT OF STATE FORESTS AND PARKS ON PUBLIC RECREATIONAL USE OF PRIVATE FORESTS IN LOUISIANA. 2.11.
THE ROLE OF LARGE PRIVATE FOREST OWNERSHIP IN OUTDOOR RECREATION IN LOUISIANA. 1.28.

MAINE.........................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12.

MARKETING RECREATION..........ANALYSIS OF FACTORS INFLUENCING THE DEMAND FOR RECREATIONAL FACILITIES IN NORTHERN WISCONSIN. 2.50.
MARKETING OF OUTDOOR RECREATIONAL SERVICES IN RURAL AREAS OF ALABAMA. 3.1.

MARYLAND......................NATIONAL RIFLE ASSOCIATION SAFETY RANGE PROJECT. 1.15.
SPY-BLIND STUDY TO LEARN THE ACCURACY WITH WHICH HUNTERS REPORT INFORMATION THROUGH MAIL SURVEYS. 4.3.

MASSACHUSETTS.................CONNECTICUT RIVER HARVEST AND POPULATION STUDY BY CREEL CENSUS AND ANGLER COUNTS. 1.31.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.13.
DETERMINATION OF DEER HUNTING PRESSURE IN MASSACHUSETTS. 2.14.
SOME EFFECTS OF LANDSCAPE ENHANCEMENT ON TIMBER PRODUCTION. 1.30.
SURVEY AND EVALUATION OF SMALL ARTIFICIAL PONDS AND FISH MANAGEMENT. 1.29.
USE OF AERIAL PHOTOGRAPHS TO LOCATE POTENTIAL OUTDOOR RECREATION AREAS. 4.4.
UTILIZATION OF WILDLIFE MANAGEMENT AREAS IN MASSACHUSETTS. 2.15.

MEETINGS......................A STUDY OF RECREATION USE OF FOREST LANDS IN MONTANA. 1.45.

MICHIGAN......................ANALYSIS OF FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES. 2.20.
CHANGING LEISURE CONCEPTS. 2.18.
COMPARISON OF PUBLIC AND PRIVATE CAMPGROUND IN OTTAWA NATIONAL FOREST IN MICHIGAN. 1.33.
EFFECT OF MEMBERSHIP IN PRIVATE RECREATION CLUBS AND MEMBERSHIP USE OF PUBLIC RECREATION LANDS. 2.19.

EFFECT OF PUBLIC RECREATIONAL DEVELOPMENT UPON SELECTED PRIVATE LANDS IN MICHIGAN UPPER PENINSULA. 1.32.
ESTABLISHING AND DEVELOPING THE SELF-GUIDING TRAIL AS AN INTERPRETIVE MEDIA IN URBAN NATURAL AREAS. 1.36.
EVALUATION OF PUBLIC USE OF STATE GAME AREAS IN SOUTHERN MICHIGAN. 2.23.
FACTORS CONTRIBUTING TO MORE EFFICIENT RECREATION PLANNING FOR MICHIGAN STATE FOREST CAMPGROUNDS. 1.42.
FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES IN MICHIGAN. 2.21.
FACTORS INFLUENCING CAMPGROUND AND CAMPSITE SELECTION. 2.17.
FACTORS INFLUENCING LENGTH OF STAY OF CAMPERS IN THE WATERLOO RECREATION AREA OF MICHIGAN. 2.16.
FEASIBILITY OF INTEGRATING SOCIAL AND PHYSICAL FACTORS OF LAND USE IN A RECREATION PLANNING PROCESS. 1.40.
IMPLICATIONS OF WILDERNESS VALUES IN THE NATIONAL PARK SYSTEM. 1.41.
INCORPORATING SCENIC CONSIDERATIONS INTO HIGHWAY INVESTMENT DECISIONS. 1.35.
MAIL OR INTERVIEW SURVEYS TO DETERMINE HUNTER ATTITUDES IN MICHIGAN. 2.22.
OPEN SPACE RESERVATIONS IN SUBDIVISIONS-A CASE STUDY IN PROVIDING LOCAL RECREATION LANDS. 1.38.
OUTDOOR RECREATION MOTIFS IN MAGAZINE ADVERTISEMENTS. 3.17.
PRODUCTION POSSIBILITY RELATIONS FOR LAND WITH RECREATION AND OTHER POTENTIAL USES. 4.6.
RECREATIONAL USE OF INDUSTRIAL FOREST LANDS IN CERTAIN COUNTIES OF MICHIGAN UPPER PENINSULA. 1.34.
STUDY GROUP IN OUTDOOR RECREATION USE DISTRIBUTION, PREFERENCE AND INTERCHANGEABILITY. 4.8.

MINNESOTA..........................ECONOMIC PROBLEMS IN THE USE, ALLOCATION, REGULATION, AND PRICING OF WATER IN MINNESOTA. 3.18.
SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE GREAT LAKES. 3.19.
SOME ECOLOGICAL IMPLICATIONS OF THE MANAGEMENT OF ITASCA STATE PARK TO MEET RECREATIONAL OBJECTIVES. 2.24.

MISSOURI...........................DEMAND OF THE METROPOLITAN POPULATION IN MISSOURI FOR OUTDOOR RECREATION FACILITIES IN RURAL AREAS. 2.25.
FACTORS AFFECTING RESOURCE USE AND INCOME POTENTIAL IN THE OZARKS OF MISSOURI. 1.44.
THE CARRYING CAPACITY OF DIFFERENT FOREST SITES FOR DIFFERENT RECREATIONAL USES IN MISSOURI. 1.43.

MOBILE RECREATION...............INTERNATIONAL SURVEY OF MOBILE RECREATION FACILITIES. 1.55.

MODELS
  GOVERNMENT SUPPORT.............GOVERNMENT AID ON PRIVATE RECREATION DEVELOPMENTS IN GEORGIA. 3.14.
  LAND ALLOCATION................ALLOCATION MODEL FOR THE PROGRAMMING, PLANNING AND BUDGET SYSTEM OF THE BUREAU OF LAND MANAGEMENT. 4.5.
    FEASIBILITY OF INTEGRATING SOCIAL AND PHYSICAL FACTORS OF LAND USE IN A RECREATION PLANNING PROCESS. 1.40.
    PRODUCTION POSSIBILITY RELATIONS FOR LAND WITH RECREATION AND OTHER POTENTIAL USES. 4.6.
    SPACIAL RELATIONS AS A GUIDE TO PREDICTING CAMPGROUND USE IN NORTHERN UTAH. 2.48.
  RESOURCE ALLOCATION...........SIMULATION AS A MEANS OF STUDYING RESOURCE ALLOCATIONS. 4.12.
  USER CHARACTERISTICS..........RECREATIONAL TRAVEL STUDY OF VISITORS TO ONTARIO PROVINCIAL PARKS. 4.11.
    RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
  WATER RECREATION DEMAND.......DEMAND FOR WATER BASED RECREATIONAL ACTIVITIES IN NEVADA. 2.27.
  WILDLIFE RESOURCES............STUDY OF METHODS AND PROCEDURES IN GAME HARVEST SURVEYS IN MICHIGAN. 4.7.

MONTANA............................A STUDY OF RECREATION USE OF FOREST LANDS IN MONTANA. 1.45.
A STUDY OF STANDARDS AND MANAGEMENT OF WILDERNESS LANDS IN MONTANA. 1.46.
ALLOCATION MODEL FOR THE PROGRAMMING, PLANNING AND BUDGET SYSTEM OF THE BUREAU OF LAND MANAGEMENT. 4.5.
FOREST ECOSYSTEM MANAGEMENT AND PROTECTION IN THE NORTHERN ROCKY MOUNTAIN AND INTERMOUNTAIN REGIONS. 1.76.

MOSQUITOES.........................LIFE HISTORY OF ARTIFICIALLY PRODUCED BROODS OF FLOODWATER MOSQUITOES IN THE TENNESSEE VALLEY. 1.69.
MOSQUITO CONTROL PROGRAM IN ST. JOHNS, BREVARD AND INDIAN RIVER COUNTIES OF FLORIDA. 1.21.

NEVADA.............................DEMAND FOR WATER BASED RECREATIONAL ACTIVITIES IN NEVADA. 2.27.
OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
WHEELER DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NEVADA. 1.47.

NEW HAMPSHIRE....................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.29.
EVALUATION OF HUNTING AND FISHING DEMANDS IN NEW HAMPSHIRE BY A MAIL QUESTIONNAIRE SURVEY. 2.28.
THE PRIVATELY OWNED CAMPGROUNDS OF NEW HAMPSHIRE. 1.49.

NEW JERSEY........................EVALUATION OF WILDLIFE UTILIZATION AND HUNTER SUCCESS USING COLLIERS MILLS TRACT IN NEW JERSEY. 2.30.

NEW MEXICO........................CREEL CENSUS AND USAGE STUDIES ON UTE, LAKE VAN, AND CHICOSA LAKE IN NEW MEXICO. 2.32.
RECREATIONAL USE, FISHING PRESSURE AND ANGLER SUCCESS AT CONCHAS LAKE, NEW MEXICO. 2.31.
RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
WILDERNESS AREA CLASSIFICATION AND PROBLEMS OF PRIVATE USE AND LAND OWNERSHIP IN WILDERNESS AREAS. 1.50.

NEW YORK..........................BIOLOGY AND CONTROL OF FLIES TROUBLESOME TO VISITORS OF RESORT AREAS AND PARKS IN NEW YORK. 1.54.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.34.
INTERNATIONAL SURVEY OF MOBILE RECREATION FACILITIES. 1.55.
MULTIPLE PURPOSE WATER RESOURCE INVESTIGATIONS IN NEW YORK. 1.52.
PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
PRIVATE INVESTMENT IN OUTDOOR RECREATION IN THE NEW YORK-NEW ENGLAND AREA. 3.21.
THE ECONOMICS OF OUTDOOR RECREATION ENTERPRISES. 3.20.
THE UTILIZATION OF RURAL LAND IN TOMPKINS COUNTY, NEW YORK. 1.53.
WATER SUPPLY AND DEMAND IN NEW YORK, THE NORTHEAST REGION AND CANADA. 1.51.
1965 RECREATION AND PARK YEARBOOK. 1.56.

NORTH CAROLINA....................BENEFIT COST ANALYSIS OF ALLOCATION OF LAND BETWEEN URBAN, RECREATIONAL AND AGRICULTURAL USES. 3.23.
CRITERIA FOR EVALUATING THE QUALITY OF WATER BASED RECREATION FACILITIES. 1.58.
DEMAND ANALYSIS OF SELECTED RECREATIONAL FACILITIES ON NO. CAROLINA FARMS. 3.22.
MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.

NORTH DAKOTA......................RECREATION DEVELOPMENT IN NORTH DAKOTA. 3.24.

OHIO..............................ANALYSIS OF THE CHARACTERISTICS AND DISTRIBUTION OF THE OHIO FISHERMAN POPULATION. 2.38.
ECONOMIC APPRAISAL OF OUTDOOR RECREATIONAL ENTERPRISES ON FARM LANDS IN SOUTHEASTERN OHIO. 3.25.
LEASED PUBLIC HUNTING AREA UTILIZATION BY PERMIT HOLDERS. 2.36.
PUBLIC HUNTING AREA UTILIZATION SURVEY. 2.37.
RECREATIONAL OPPORTUNITIES AND RESOURCES ON SMALL WOODLANDS. 1.59.
TELEPHONE SURVEY OF GAME HARVEST AND HUNTING PRESSURE IN OHIO. 4.9.

OKLAHOMA..........................DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED IN OKLAHOMA. 2.40, 4.10.
ECONOMICS OF AGRICULTURAL LAND AND WATER USE, CONSERVATION AND DEVELOPMENT IN OKLAHOMA WATERSHEDS. 3.26.
EVALUATION OF UTILIZATION OF OKLAHOMA WILDLIFE CONSERVATION LAKES FOR FISHING AND RECREATION. 2.39.

ONTARIO...........................RECREATIONAL TRAVEL STUDY OF VISITORS TO ONTARIO PROVINCIAL PARKS. 4.11.

OREGON............................CAUSE AND PREVENTION OF DAMAGE BY DISEASE TO FOREST RECREATION AREAS. 1.61.
ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
INVESTIGATION OF AQUATIC WEED PROBLEMS AND MEANS OF CONTROL WITH EMPHASIS ON BRAZILIAN WATERWEED. 1.60.
RECREATIONAL USE OF WILDERNESS AREAS AND REQUIREMENTS IN RELATION TO OTHER FOREST USES. 2.42.
SIMULATION AS A MEANS OF STUDYING RESOURCE ALLOCATIONS. 4.12.
SURVEY OF EFFORT AND SUCCESS BY OREGON ANGLERS. 2.41.
WILLAMETTE BASIN DEVELOPMENT STUDY IN OREGON. 3.27.

PENNSYLVANIA......................ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION IN SMALL WATERSHEDS OF PENNSYLVANIA. 3.29.
NATURE AND DETERMINANTS OF A SUCCESSFUL THERAPEUTIC CAMP EXPERIENCE IN A RESIDENTIAL TREATMENT. 2.43.
PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.
THE DEMAND STRUCTURE FOR RURAL RECREATION IN PENNSYLVANIA. 2.44.
WILDLAND RECREATIONAL MANAGEMENT IN PENNSYLVANIA QUEHANNA WILDERNESS AREA. 1.62.

PEST CONTROL......................BIOLOGY AND CONTROL OF FLIES TROUBLESOME TO VISITORS OF RESORT AREAS AND PARKS IN NEW YORK. 1.54.
FOREST ECOSYSTEM MANAGEMENT AND PROTECTION IN THE NORTHERN ROCKY MOUNTAIN AND INTERMOUNTAIN REGIONS. 1.76.
LIFE HISTORY OF ARTIFICIALLY PRODUCED BROODS OF FLOODWATER MOSQUITOES IN THE TENNESSEE VALLEY. 1.69.
MOSQUITO CONTROL PROGRAM IN ST. JOHNS, BREVARD AND INDIAN RIVER COUNTIES OF FLORIDA. 1.21.

PHEASANT CLUBS....................UPLAND GAME INVESTIGATIONS OF LICENSED PHEASANT CLUB MANAGEMENT PROGRAM. 1.6.

PICNICKING........................PLANNING, DEVELOPMENT, MANAGEMENT AND REHABILITATION IN INTERMOUNTAIN AND NORTHERN REGIONS. 1.75.

PLANNING
GOVERNMENT SUPPORT.............FEDERAL AGENCY OUTDOOR RECREATION PLANNING. 1.19.
LAND ALLOCATION................A STUDY OF STANDARDS AND MANAGEMENT OF WILDERNESS LANDS IN MONTANA. 1.46.
ECONOMIC APPRAISAL OF IMPACTS OF URBAN GROWTH ON RURAL LAND USE. 3.9.
FEASIBILITY OF INTEGRATING SOCIAL AND PHYSICAL FACTORS OF LAND USE IN A RECREATION PLANNING PROCESS. 1.40.
SPACIAL RELATIONS AS A GUIDE TO PREDICTING CAMPGROUND USE IN NORTHERN UTAH. 2.48.
LEISURE TIME...................CHANGING LEISURE CONCEPTS. 2.18.
PLANS AND EXPECTATIONS FOR OLD AGE. 2.10.
MANAGEMENT
MULTIPLE USE...................COMBINATION OF OUTDOOR RECREATION AND ALTERNATIVE ENTERPRISES ON INDIANA PRIVATE PROPERTY. 1.24.
CONNECTICUT RIVER HARVEST AND POPULATION STUDY BY CREEL CENSUS AND ANGLER COUNTS. 1.31.
ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
PLANNING, DEVELOPMENT, MANAGEMENT AND REHABILITATION IN INTERMOUNTAIN AND NORTHERN REGIONS. 1.75.
PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.
STUDY GROUP IN OUTDOOR RECREATION USE DISTRIBUTION, PREFERENCE AND INTERCHANGEABILITY. 4.8.
PROJECTED REQUIREMENTS
HUNTING AND FISHING..........PROPOSED COLORADO RIVER WATER TRANSFER TO CENTRAL ARIZONA IN RELATION TO RECREATION. 1.3.
PRIVATE ENTERPRISE...........COMBINATION OF OUTDOOR RECREATION AND ALTERNATIVE ENTERPRISES ON INDIANA PRIVATE PROPERTY. 1.24.
RECREATION DEVELOPMENT
FOREST AREAS.................A STUDY OF RECREATION USE OF FOREST LANDS IN MONTANA. 1.45.
LAKE AREA....................RECREATIONAL DEVELOPMENT IN BEAR LAKE AREA IN UTAH. 3.33.
RECREATIONAL FACILITIES
FARM AREAS...................DEMAND OF THE METROPOLITAN POPULATION IN MISSOURI FOR OUTDOOR RECREATION FACILITIES IN RURAL AREAS. 2.25.
OUTDOOR RECREATION FACILITY DEMAND IN THE PHILADELPHIA - BALTIMORE - WASHINGTON METROPOLITAN AREA. 2.5.
FOREST AREAS.................FACTORS CONTRIBUTING TO MORE EFFICIENT RECREATION PLANNING FOR MICHIGAN STATE FOREST CAMPGROUNDS. 1.42.
PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.
WATER RESOURCES
FISHING......................OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
PRIVATE INVESTMENT...............STUDY OF PRIVATE OUTDOOR RECREATION ENTERPRISES. 1.18.
FARM RECREATION..............DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.
ECONOMIC APPRAISAL OF OUTDOOR RECREATIONAL ENTERPRISES ON FARM LANDS IN SOUTHEASTERN OHIO. 3.25.
FOREST RECREATION..............COMBINATION OF OUTDOOR RECREATION AND ALTERNATIVE ENTERPRISES ON INDIANA PRIVATE PROPERTY. 1.24.
DEVELOPMENT OF RHODE ISLAND FORESTED LANDS FOR RECREATION AND OTHER USES. 1.66.
PRIVATE INVESTMENT IN OUTDOOR RECREATION IN THE NEW YORK-NEW ENGLAND AREA. 3.21.
THE ROLE OF LARGE PRIVATE FOREST OWNERSHIP IN OUTDOOR RECREATION IN LOUISIANA. 1.28.
PROJECTED DEMAND
FOREST RECREATION............EFFECT OF STATE FORESTS AND PARKS ON PUBLIC RECREATIONAL USE OF PRIVATE FORESTS IN LOUISIANA. 2.11.
FOREST RECREATION INVESTMENT OPPORTUNITIES IN IOWA. 3.15.
MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
RECREATIONAL OPPORTUNITIES AND RESOURCES ON SMALL WOODLANDS. 1.59.
TECHNIQUES FOR PLANNING, DEVELOPMENT AND MANAGEMENT OF WESTERN INTERMOUNTAIN WILD LANDS. 4.13.
RECREATIONAL FACILITIES.......RECREATION DEVELOPMENT IN NORTH DAKOTA. 3.24.
THE DEMAND FOR OUTDOOR RECREATION IN TENNESSEE. 2.46.
RURAL RECREATION..............DEMAND OF THE METROPOLITAN POPULATION IN MISSOURI FOR OUTDOOR RECREATION FACILITIES IN RURAL AREAS. 2.25.
SOCIAL PATTERN OF RECREATIONAL ACTIVITY OF RHODE ISLAND AND POTENTIAL USE OF RURAL RECREATION. 2.45.
THE DEMAND STRUCTURE FOR RURAL RECREATION IN PENNSYLVANIA. 2.44.
WATER RECREATION..............DEMAND FOR WATER BASED RECREATIONAL ACTIVITIES IN NEVADA. 2.27.
DEVELOPMENT OF WATER RECREATION POTENTIAL OF LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.
PROJECTING RECREATION USE WITHIN AN HOUR AND A HALF DRIVE OF A MAIN RIVER COURSE. 2.4.
USE AND DISTRIBUTION OF FRESH WATER RESOURCES IN RHODE ISLAND. 1.65.
WATER SUPPLY AND DEMAND IN NEW YORK, THE NORTHEAST REGION AND CANADA. 1.51.
WILDERNESS USE................ECONOMIC ANALYSIS OF MULTIPLE USES OF WILDERNESS AREAS. 3.4.
PUBLICATIONS.......................ECONOMIC IMPORTANCE OF RECREATIONAL FACILITIES AND RELATED SERVICES TO KENTUCKY FARMERS. 3.16.
ESTABLISHING AND DEVELOPING THE SELF-GUIDING TRAIL AS AN INTERPRETIVE MEDIA IN URBAN NATURAL AREAS. 1.36.
INTERNATIONAL SURVEY OF MOBILE RECREATION FACILITIES. 1.55.
INVENTORY AND DIGEST OF OUTDOOR RECREATION RELATED FEDERAL PROGRAMS. 1.20.
PUBLIC ACCESS SURVEY OF PUBLIC WATERS IN REGION 2-A OF TEXAS. 1.70.
RECREATIONAL TRAVEL STUDY OF VISITORS TO ONTARIO PROVINCIAL PARKS. 4.11.

(CONTINUED)

SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE GREAT LAKES. 3.19.
STUDY OF THE HUNTING HABITS AND PREFERENCES OF ALABAMA DEER HUNTERS. 2.1.
THE 1965 NATIONAL SURVEY OF RECREATION PARTICIPANTS. 2.3.
WHEELER DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NEVADA. 1.47.
WILDERNESS AREA CLASSIFICATION AND PROBLEMS OF PRIVATE USE AND LAND OWNERSHIP IN WILDERNESS AREAS. 1.50.
1965 RECREATION AND PARK YEARBOOK. 1.56.

PUERTO RICO......................DETERMINATION OF SAFE LEVELS OF POLLUTION OF MAYAGUEZ BAY IN PUERTO RICO. 1.64.

RECREATION FACILITIES
  INVENTORY......................DEMAND ANALYSIS OF SELECTED RECREATIONAL FACILITIES ON NO. CAROLINA FARMS. 3.22.
    DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.
    ECONOMIC EVALUATION OF RECREATION AS AN ALTERNATIVE USE OF RURAL RESOURCES IN VIRGINIA. 3.36.
    ECONOMIC IMPORTANCE OF RECREATIONAL FACILITIES AND RELATED SERVICES TO KENTUCKY FARMERS. 3.16.
    FACTORS CONTRIBUTING TO MORE EFFICIENT RECREATION PLANNING FOR MICHIGAN STATE FOREST CAMPGROUNDS. 1.42.
    INTERNATIONAL SURVEY OF MOBILE RECREATION FACILITIES. 1.55.
    PRESENT AND FUTURE DEMAND CALCULATION FOR OUTDOOR RECREATION IN THE STATE OF KANSAS. 2.26.
    RECREATION DEVELOPMENT IN NORTH DAKOTA. 3.24.
    RECREATIONAL DEVELOPMENT IN BEAR LAKE AREA IN UTAH. 3.33.
    STUDY OF PRIVATE OUTDOOR RECREATION ENTERPRISES. 1.18.
    1965 RECREATION AND PARK YEARBOOK. 1.56.
  WATER RECREATION...............CRITERIA FOR EVALUATING THE QUALITY OF WATER BASED RECREATION FACILITIES. 1.58.
    DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED IN OKLAHOMA. 4.10.
    ORGANIZATIONAL ARRANGEMENTS IN URBAN RIVER BASINS TO PROVIDE RECREATION AND POLLUTION CONTROL. 1.39.

RECREATIONAL LAND USE
  FOREST AREAS...................ANALYSIS OF FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES. 2.20.
    ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
    PLANNING, DEVELOPMENT, MANAGEMENT AND REHABILITATION IN INTERMOUNTAIN AND NORTHERN REGIONS. 1.75.
    RECREATIONAL USE OF FOREST LANDS RELATED TO MANAGEMENT OF TIMBER PRODUCTION IN WESTERN WASHINGTON. 1.78.
    THE CARRYING CAPACITY OF DIFFERENT FOREST SITES FOR DIFFERENT RECREATIONAL USES IN MISSOURI. 1.43.
    THE ROLE OF LARGE PRIVATE FOREST OWNERSHIP IN OUTDOOR RECREATION IN LOUISIANA. 1.28.
  RURAL AREAS....................CHANGE IN RURAL SOCIAL PATTERNS RELATED TO SUBURBANIZATION AND RECREATIONAL LAND USE IN RURAL AREAS. 1.14.

REGULATIONS
  LAND USE.......................ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION IN SMALL WATERSHEDS OF PENNSYLVANIA. 3.29.
  PHEASANT CLUBS.................UPLAND GAME INVESTIGATIONS OF LICENSED PHEASANT CLUB MANAGEMENT PROGRAM. 1.6.

RESEARCH METHODS
  COMPUTERS......................ANALYSIS OF THE CHARACTERISTICS AND DISTRIBUTION OF THE OHIO FISHERMAN POPULATION. 2.38.
    DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
    EVALUATION OF UTILIZATION OF OKLAHOMA WILDLIFE CONSERVATION LAKES FOR FISHING AND RECREATION. 2.39.
    PRESENT AND FUTURE DEMAND CALCULATION FOR OUTDOOR RECREATION IN THE STATE OF KANSAS. 2.26.
    SIMULATION AS A MEANS OF STUDYING RESOURCE ALLOCATIONS. 4.12.
    SOME EFFECTS OF LANDSCAPE ENHANCEMENT ON TIMBER PRODUCTION. 1.30.
    THE ROLE OF LARGE PRIVATE FOREST OWNERSHIP IN OUTDOOR RECREATION IN LOUISIANA. 1.28.
  DEVELOPMENT....................DEVELOPMENT OF A METHOD FOR EVALUATING POTENTIAL RECREATION USE ON ALL, PRIVATE WOODLANDS. 4.2.
    ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
    GUIDES FOR MULTIPLE LAND USE IN THE PACIFIC SOUTHWEST. 1.4.
    STUDY GROUP IN OUTDOOR RECREATION USE DISTRIBUTION, PREFERENCE AND INTERCHANGEABILITY. 4.8.
    TECHNIQUES FOR PLANNING, DEVELOPMENT AND MANAGEMENT OF WESTERN INTERMOUNTAIN WILD LANDS. 4.13.
  ENGINEERING REVIEW.............DEVELOPMENT OF RHODE ISLAND FORESTED LANDS FOR RECREATION AND OTHER USES. 1.66.
    USE AND DISTRIBUTION OF FRESH WATER RESOURCES IN RHODE ISLAND. 1.65.
  INSTRUMENTATION................ESTIMATING RECREATIONAL VISITS AND USE OF UNATTENDED WILDLAND RECREATION SITES IN IDAHO. 4.1.
    RECREATION USE BY SAMPLE COUNTS AND CONTINUOUS RECORDS WITHIN A UTAH RECREATION COMPLEX. 4.14.
    THE INFLUENCE OF SPECIAL REGULATIONS ON THE FISH AND FISHERMEN OF THE POUDRE RIVER. 1.11.
  PHOTOGRAPHY....................ECONOMIC APPRAISAL OF IMPACTS OF URBAN GROWTH ON RURAL LAND USE. 3.9.
    ECONOMICS OF MULTIPLE USE OF PACIFIC NORTHWEST FOREST LANDS. 3.28.
    PLANNING, DEVELOPMENT, MANAGEMENT AND

    REHABILITATION IN INTERMOUNTAIN AND NORTHERN REGIONS. 1.75.
    PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
    PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.
    THE CARRYING CAPACITY OF DIFFERENT FOREST SITES FOR DIFFERENT RECREATIONAL USES IN MISSOURI. 1.43.
    USE OF AERIAL PHOTOGRAPHS TO LOCATE POTENTIAL OUTDOOR RECREATION AREAS. 4.4.
MAPPING......................DEVELOPMENT OF RHODE ISLAND FORESTED LANDS FOR RECREATION AND OTHER USES. 1.66.
    ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
    FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES IN MICHIGAN. 2.21.
    PUBLIC ACCESS SURVEY OF PUBLIC WATERS IN REGION 2-A OF TEXAS. 1.70.
    THE UTILIZATION OF RURAL LAND IN TOMPKINS COUNTY, NEW YORK. 1.53.
    USE AND DISTRIBUTION OF FRESH WATER RESOURCES IN RHODE ISLAND. 1.65.

RESEARCH METHODS-MATHEMATICAL MODELS.........................ALLOCATION MODEL FOR THE PROGRAMMING, PLANNING AND BUDGET SYSTEM OF THE BUREAU OF LAND MANAGEMENT. 4.5.
    DEMAND FOR WATER BASED RECREATIONAL ACTIVITIES IN NEVADA. 2.27.
    FEASIBILITY OF INTEGRATING SOCIAL AND PHYSICAL FACTORS OF LAND USE IN A RECREATION PLANNING PROCESS. 1.40.
    GOVERNMENT AID ON PRIVATE RECREATION DEVELOPMENTS IN GEORGIA. 3.14.
    PRODUCTION POSSIBILITY RELATIONS FOR LAND WITH RECREATION AND OTHER POTENTIAL USES. 4.6.
    RECREATIONAL TRAVEL STUDY OF VISITORS TO ONTARIO PROVINCIAL PARKS. 4.11.
    RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
    SIMULATION AS A MEANS OF STUDYING RESOURCE ALLOCATIONS. 4.12.
    SPACIAL RELATIONS AS A GUIDE TO PREDICTING CAMPGROUND USE IN NORTHERN UTAH. 2.48.
STATISTICAL TECHNIQUES........COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
    ECONOMIC ANALYSIS OF MULTIPLE USES OF WILDERNESS AREAS. 3.4.
    ESTIMATING RECREATIONAL VISITS AND USE OF UNATTENDED WILDLAND RECREATION SITES IN IDAHO. 4.1.
    EVALUATION OF LAND USE PATTERNS IN EXPANDING METROPOLITAN REGIONS IN VIRGINIA. 1.77.
    FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES IN MICHIGAN. 2.21.
    PRESENT AND FUTURE DEMAND CALCULATION FOR OUTDOOR RECREATION IN THE STATE OF KANSAS. 2.26.
    STUDY OF METHODS AND PROCEDURES IN GAME HARVEST SURVEYS IN MICHIGAN. 4.7.

RESEARCH METHODS-SURVEYS
ANGLER COUNTS..................CONNECTICUT RIVER HARVEST AND POPULATION STUDY BY CREEL CENSUS AND ANGLER COUNTS. 1.31.
CREEL CENSUS....................CONNECTICUT RIVER HARVEST AND POPULATION STUDY BY CREEL CENSUS AND ANGLER COUNTS. 1.31.
    CREEL CENSUS AND ECONOMIC SURVEY OF CATCH IN DALE HOLLOW TAILWATER, TENNESSEE. 2.47.
    CREEL CENSUS AND USAGE STUDIES ON UTE, LAKE VAN, AND CHICOSA LAKE IN NEW MEXICO. 2.32.
    EVALUATION OF UTILIZATION OF OKLAHOMA WILDLIFE CONSERVATION LAKES FOR FISHING AND RECREATION. 2.39.
    OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
    RECREATIONAL USE, FISHING PRESSURE AND ANGLER SUCCESS AT CONCHAS LAKE, NEW MEXICO. 2.31.
    THE INFLUENCE OF SPECIAL REGULATIONS ON THE FISH AND FISHERMEN OF THE POUDRE RIVER. 1.11.
    WHEELER DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NEVADA. 1.47.
DIRECT OBSERVATIONS...........CREEL CENSUS AND USAGE STUDIES ON UTE, LAKE VAN, AND CHICOSA LAKE IN NEW MEXICO. 2.32.
    EVALUATION OF WILDLIFE UTILIZATION AND HUNTER SUCCESS USING COLLIERS MILLS TRACT IN NEW JERSEY. 2.30.
    FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES IN MICHIGAN. 2.21.
    RECREATIONAL USE, FISHING PRESSURE AND ANGLER SUCCESS AT CONCHAS LAKE, NEW MEXICO. 2.31.
    UTILIZATION OF WILDLIFE MANAGEMENT AREAS IN MASSACHUSETTS. 2.15.
LICENSE REVIEW.................CREEL CENSUS AND USAGE STUDIES ON UTE, LAKE VAN, AND CHICOSA LAKE IN NEW MEXICO. 2.32.
    STUDY OF METHODS AND PROCEDURES IN GAME HARVEST SURVEYS IN MICHIGAN. 4.7.
    TO DETERMINE THE COUNTY OF RESIDENCE OF THE HUNTERS CHECKED ON THE MANAGEMENT AREAS IN FLORIDA. 2.8.
MECHANICAL COUNTERS............ESTIMATING RECREATIONAL VISITS AND USE OF UNATTENDED WILDLAND RECREATION SITES IN IDAHO. 4.1.
    EVALUATION OF WILDLIFE UTILIZATION AND HUNTER SUCCESS USING COLLIERS MILLS TRACT IN NEW JERSEY. 2.30.
    MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
PERSONAL INTERVIEWS...........AN ECONOMIC ANALYSIS OF THE DEMAND FOR LAND AND WATER-BASED OUTDOOR RECREATION IN TEXAS. 3.32.
    ANALYSIS OF THE CHARACTERISTICS AND DISTRIBUTION OF THE OHIO FISHERMAN POPULATION. 2.38.
    CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
    CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.2, 2.29.
    ECONOMIC APPRAISAL OF OUTDOOR RECREATIONAL ENTERPRISES ON
(CONTINUED)

FARM LANDS IN SOUTHEASTERN OHIO. 3.25.
EFFECT OF STATE FORESTS AND PARKS ON PUBLIC RECREATIONAL USE OF PRIVATE FORESTS IN LOUISIANA. 2.11.
FOREST RECREATION INVESTMENT OPPORTUNITIES IN IOWA. 3.15.
GOVERNMENT AID ON PRIVATE RECREATION DEVELOPMENTS IN GEORGIA. 3.14.
MARKETING OF OUTDOOR RECREATIONAL SERVICES IN RURAL AREAS OF ALABAMA. 3.1.
PLANS AND EXPECTATIONS FOR OLD AGE. 2.10.
RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
STUDY OF PRIVATE OUTDOOR RECREATION ENTERPRISES. 1.18.
THE DEMAND FOR OUTDOOR RECREATION IN TENNESSEE. 2.46.
THE DEMAND STRUCTURE FOR RURAL RECREATION IN PENNSYLVANIA. 2.44.
THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS. 3.10.
THE INFLUENCE OF SPECIAL REGULATIONS ON THE FISH AND FISHERMEN OF THE POUDRE RIVER. 1.11.

QUESTIONNAIRES................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.34.
DEMAND ANALYSIS OF SELECTED RECREATIONAL FACILITIES ON NO. CAROLINA FARMS. 3.22.
DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED IN OKLAHOMA. 2.40, 4.10.
ECONOMIC IMPORTANCE OF RECREATIONAL FACILITIES AND RELATED SERVICES TO KENTUCKY FARMERS. 3.16.
FOREST FIRE PREVENTION THROUGH PUBLIC INTEREST IN GAME AND MANAGEMENT IN SOUTHERN WEST VIRGINIA. 1.79.
INCOME-PRODUCING OUTDOOR RECREATION ON PRIVATE LANDS. 3.35.
INTERNATIONAL SURVEY OF MOBILE RECREATION FACILITIES. 1.55.
OUTDOOR RECREATION FACILITY DEMAND IN THE PHILADELPHIA - BALTIMORE - WASHINGTON METROPOLITAN AREA. 2.5.
PROVISIONS IN LEASING CONTRACTS AND RENTAL RATES PAID FOR RURAL LAND IN ILLINOIS. 1.23.
RECREATIONAL TRAVEL STUDY OF VISITORS TO ONTARIO PROVINCIAL PARKS. 4.11.
THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS. 3.10.
THE ROLE OF LARGE PRIVATE FOREST OWNERSHIP IN OUTDOOR RECREATION IN LOUISIANA. 1.28.
1965 RECREATION AND PARK YEARBOOK. 1.56.

  HAND OUT....................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.6.
PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.

  MAIL........................ANALYSIS OF THE CHARACTERISTICS AND DISTRIBUTION OF THE OHIO FISHERMAN POPULATION. 2.38.
AVAILABILITY OF PRIVATE LAND FOR PUBLIC HUNTING IN ANGELINA COUNTY, TEXAS. 1.72.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.2, 2.12, 2.13, 2.29.
DETERMINATION OF DEER HUNTING PRESSURE IN MASSACHUSETTS. 2.14.
EVALUATION OF HUNTING AND FISHING DEMANDS IN NEW HAMPSHIRE BY A MAIL QUESTIONNAIRE SURVEY. 2.28.
FOREST RECREATION INVESTMENT OPPORTUNITIES IN IOWA. 3.15.
MAIL OR INTERVIEW SURVEYS TO DETERMINE HUNTER ATTITUDES IN MICHIGAN. 2.22.
PRIVATE INVESTMENT IN OUTDOOR RECREATION IN THE NEW YORK-NEW ENGLAND AREA. 3.21.
PUBLIC HUNTING AREA UTILIZATION SURVEY. 2.37.
SPY-BLIND STUDY TO LEARN THE ACCURACY WITH WHICH HUNTERS REPORT INFORMATION THROUGH MAIL SURVEYS. 4.3.
STUDY OF METHODS AND PROCEDURES IN GAME HARVEST SURVEYS IN MICHIGAN. 4.7.
THE DEMAND FOR OUTDOOR RECREATION IN TENNESSEE. 2.46.
TO MEASURE AND EVALUATE STATEWIDE AND SECTIONAL SPORTSMAN OPINION IN FLORIDA. 2.7.

  TELEPHONE...................LEASED PUBLIC HUNTING AREA UTILIZATION BY PERMIT HOLDERS. 2.36.
SURVEY OF EFFORT AND SUCCESS BY OREGON ANGLERS. 2.41.
TELEPHONE SURVEY OF GAME HARVEST AND HUNTING PRESSURE IN OHIO. 4.9.

  TOLL BOOTH COUNTS.............STUDY OF METHODS AND PROCEDURES IN GAME HARVEST SURVEYS IN MICHIGAN. 4.7.

  VEHICLE COUNT.................FACTORS AFFECTING RESOURCE USE AND INCOME POTENTIAL IN THE OZARKS OF MISSOURI. 1.44.
RECREATION USE BY SAMPLE COUNTS AND CONTINUOUS RECORDS WITHIN A UTAH RECREATION COMPLEX. 4.14.

  VOLUNTEER REPORTING...........UTILIZATION OF WILDLIFE MANAGEMENT AREAS IN MASSACHUSETTS. 2.15.

  WING COLLECTION ENVELOPES.....SPY-BLIND STUDY TO LEARN THE ACCURACY WITH WHICH HUNTERS REPORT INFORMATION THROUGH MAIL SURVEYS. 4.3.

RESEARCH PERSONNEL
  TRAINING......................RECREATIONAL OPPORTUNITIES AND RESOURCES ON SMALL WOODLANDS. 1.59.
STUDY GROUP IN OUTDOOR RECREATION USE DISTRIBUTION, PREFERENCE AND INTERCHANGEABILITY. 4.8.

RESOURCE ORGANIZATIONS
  INVENTORY.....................ECONOMIC APPRAISAL OF LOCAL SOIL, WATER AND OTHER RESOURCE ORGANIZATIONS. 1.16.

RHODE ISLAND....................ATTITUDES AND GOALS OF AREA RESIDENTS AND ECONOMY OF PROJECTED PLANS FOR RECREATION DEVELOPMENT. 3.30.
DEVELOPMENT OF RHODE ISLAND FORESTED LANDS FOR RECREATION AND OTHER USES. 1.66.
SOCIAL PATTERN OF RECREATIONAL ACTIVITY OF RHODE ISLAND AND POTENTIAL USE OF RURAL RECREATION. 2.45.

USE AND DISTRIBUTION OF FRESH WATER RESOURCES IN RHODE ISLAND. 1.65.

RIDING..........................ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.

RIFLERY..........................NATIONAL RIFLE ASSOCIATION SAFETY RANGE PROJECT. 1.15.

RURAL RECREATION................ECONOMIC EVALUATION OF RECREATION AS AN ALTERNATIVE USE OF RURAL RESOURCES IN VIRGINIA. 3.36.
THE DEMAND STRUCTURE FOR RURAL RECREATION IN PENNSYLVANIA. 2.44.
THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS. 3.10.

SAFETY..........................FOREST FIRE PREVENTION THROUGH PUBLIC INTEREST IN GAME AND MANAGEMENT IN SOUTHERN WEST VIRGINIA. 1.79.
INCORPORATING SCENIC CONSIDERATIONS INTO HIGHWAY INVESTMENT DECISIONS. 1.35.
NATIONAL RIFLE ASSOCIATION SAFETY RANGE PROJECT. 1.15.
RECREATIONAL USE OF WILDERNESS AREAS AND REQUIREMENTS IN RELATION TO OTHER FOREST USES. 2.42.

SAN LUIS VALLEY..................EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.8.

SKIING..........................ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.

SOCIAL IMPACT
FOREST RECREATION.............DEVELOPMENT OF RHODE ISLAND FORESTED LANDS FOR RECREATION AND OTHER USES. 1.66.
RECREATIONAL OPPORTUNITIES AND RESOURCES ON SMALL WOODLANDS. 1.59.
LAND RESOURCES.................FEASIBILITY OF INTEGRATING SOCIAL AND PHYSICAL FACTORS OF LAND USE IN A RECREATION PLANNING PROCESS. 1.40.
RECREATIONAL ACTIVITY.........SOCIAL PATTERN OF RECREATIONAL ACTIVITY OF RHODE ISLAND AND POTENTIAL USE OF RURAL RECREATION. 2.45.
SUBURBANIZATION................CHANGE IN RURAL SOCIAL PATTERNS RELATED TO SUBURBANIZATION AND RECREATIONAL LAND USE IN RURAL AREAS. 1.14.

SOIL STUDIES.....................CHANGES IN CAMPGROUND VEGETATION AND SOILS AS RELATED TO FERTILIZER, WATER AND VISITOR USE. 1.74.
THE CARRYING CAPACITY OF DIFFERENT FOREST SITES FOR DIFFERENT RECREATIONAL USES IN MISSOURI. 1.43.
THE EFFECT OF RECREATIONAL DEVELOPMENT ON LAKE OF EGYPT UPON THE LAND AND WATER. 1.22.
TREE PLANTINGS TO ENHANCE RECREATION POTENTIAL OF SITES ON MISSOURI RIVER RESERVOIRS IN SO. DAKOTA. 1.68.

REHABILITATION..................IMPACT OF RECREATIONISTS ON VEGETATION AND SOILS IN SELECTED SITES OF UTAH. 1.73.
REDUCTION IN DAMAGES TO FORESTS BY IMPROVING MINING AND REHABILITATION PROCEDURES. 1.27.

SOUTH DAKOTA....................ECONOMIC POTENTIALS FOR WATER RESOURCES DEVELOPMENT IN SOUTH DAKOTA. 3.31.
TREE PLANTINGS TO ENHANCE RECREATION POTENTIAL OF SITES ON MISSOURI RIVER RESERVOIRS IN SO. DAKOTA. 1.68.
WATER QUALITY AND PRIMARY PRODUCTION OF SOUTH DAKOTA LAKES. 1.67.

SWIMMING........................COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
CRITERIA FOR EVALUATING THE QUALITY OF WATER BASED RECREATION FACILITIES. 1.58.

TAXATION........................BASIC LAND ECONOMIC DATA FOR SELECTED AREAS OF NORTHERN WISCONSIN. 3.37.
EFFECT OF PUBLIC RECREATIONAL DEVELOPMENT UPON SELECTED PRIVATE LANDS IN MICHIGAN UPPER PENINSULA. 1.32.
OPEN SPACE RESERVATIONS IN SUBDIVISIONS-A CASE STUDY IN PROVIDING LOCAL RECREATION LANDS. 1.38.

TENNESSEE.......................CREEL CENSUS AND ECONOMIC SURVEY OF CATCH IN DALE HOLLOW TAILWATER, TENNESSEE. 2.47.
LIFE HISTORY OF ARTIFICIALLY PRODUCED BROODS OF FLOODWATER MOSQUITOES IN THE TENNESSEE VALLEY. 1.69.
THE DEMAND FOR OUTDOOR RECREATION IN TENNESSEE. 2.46.

TEXAS...........................AN ECONOMIC ANALYSIS OF THE DEMAND FOR LAND AND WATER-BASED OUTDOOR RECREATION IN TEXAS. 3.32.
AVAILABILITY OF PRIVATE LAND FOR PUBLIC HUNTING IN ANGELINA COUNTY, TEXAS. 1.72.
DEVELOPING AGRICULTURAL LAND IN RECREATIONAL USES UNDER PRIVATE OWNERSHIP IN TEXAS. 1.71.
PUBLIC ACCESS SURVEY OF PUBLIC WATERS IN REGION 2-A OF TEXAS. 1.70.

THERAPEUTIC RECREATION..........NATURE AND DETERMINANTS OF A SUCCESSFUL THERAPEUTIC CAMP EXPERIENCE IN A RESIDENTIAL TREATMENT. 2.43.

TRANSPORTATION..................CHANGE IN RURAL SOCIAL PATTERNS RELATED TO SUBURBANIZATION AND RECREATIONAL LAND USE IN RURAL AREAS. 1.14.
DEVELOPMENT OF WATER RECREATION POTENTIAL OF

(CONTINUED)

LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.
INCORPORATING SCENIC CONSIDERATIONS INTO HIGHWAY INVESTMENT DECISIONS. 1.35.

URBANIZATION........................ECONOMIC APPRAISAL OF IMPACTS OF URBAN GROWTH ON RURAL LAND USE. 3.9.
ORGANIZATIONAL ARRANGEMENTS IN URBAN RIVER BASINS TO PROVIDE RECREATION AND POLLUTION CONTROL. 1.39.

USER CHARACTERISTICS
ACCESS
HUNTERS......................EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.8, 1.9.
UTILIZATION OF WILDLIFE MANAGEMENT AREAS IN MASSACHUSETTS. 2.15.
BEHAVIOR
CAMPERS......................INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
FISHERMEN....................CREEL CENSUS AND USAGE STUDIES ON UTE, LAKE VAN, AND CHICOSA LAKE IN NEW MEXICO. 2.32.
HUNTERS......................DETERMINATION OF DEER HUNTING PRESSURE IN MASSACHUSETTS. 2.14.
EVALUATION OF PUBLIC USE OF STATE GAME AREAS IN SOUTHERN MICHIGAN. 2.23.
MAIL OR INTERVIEW SURVEYS TO DETERMINE HUNTER ATTITUDES IN MICHIGAN. 2.22.
STUDY OF THE HUNTING HABITS AND PREFERENCES OF ALABAMA DEER HUNTERS. 2.1.
EXPENDITURES.....................ANALYSIS OF FACTORS INFLUENCING THE DEMAND FOR RECREATIONAL FACILITIES IN NORTHERN WISCONSIN. 2.50.
DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED IN OKLAHOMA. 2.40.
EFFECT OF STATE FORESTS AND PARKS ON PUBLIC RECREATIONAL USE OF PRIVATE FORESTS IN LOUISIANA. 2.11.
FEDERAL GRANTS-IN-AID UNDER LAND-WATER CONSERVATION FUND AND SURVEY OF RECREATION EXPENDITURES. 3.6.
THE DEMAND FOR OUTDOOR RECREATION IN TENNESSEE. 2.46.
CAMPERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.29, 2.34.
FISHERMEN....................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12, 2.13.
CREEL CENSUS AND ECONOMIC SURVEY OF CATCH IN DALE HOLLOW TAILWATER, TENNESSEE. 2.47.
HUNTERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12, 2.13.
DETERMINATION OF DEER HUNTING PRESSURE IN MASSACHUSETTS. 2.14.
FREQUENCY OF USE.................LEASED PUBLIC HUNTING AREA UTILIZATION BY PERMIT HOLDERS. 2.36.
HARVEST
HUNTERS......................TELEPHONE SURVEY OF GAME HARVEST AND HUNTING PRESSURE IN OHIO. 4.9.
UTILIZATION OF WILDLIFE MANAGEMENT AREAS IN MASSACHUSETTS. 2.15.
LOCATION PREFERENCE
CAMPERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.6.
MOTIVATION
CAMPERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.6, 2.29.
NATURE AND DETERMINANTS OF A SUCCESSFUL THERAPEUTIC CAMP EXPERIENCE IN A RESIDENTIAL TREATMENT. 2.43.
FISHERMEN....................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12, 2.13.
FOREST RECREATIONISTS........RECREATIONAL OPPORTUNITIES AND RESOURCES ON SMALL WOODLANDS. 1.59.
HIKERS.......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.2.
HUNTERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12, 2.13.
PUBLIC HUNTING AREA UTILIZATION SURVEY. 2.37.
RURAL RECREATIONISTS.........THE DEMAND STRUCTURE FOR RURAL RECREATION IN PENNSYLVANIA. 2.44.
MOVEMENT
HUNTERS......................TO DETERMINE THE COUNTY OF RESIDENCE OF THE HUNTERS CHECKED ON THE MANAGEMENT AREAS IN FLORIDA. 2.8.
PERFORMANCE......................EFFECT OF STATE FORESTS AND PARKS ON PUBLIC RECREATIONAL USE OF PRIVATE FORESTS IN LOUISIANA. 2.11.
ESTABLISHING AND DEVELOPING THE SELF-GUIDING TRAIL AS AN INTERPRETIVE MEDIA IN URBAN NATURAL AREAS. 1.36.
CAMPERS......................FACTORS INFLUENCING LENGTH OF STAY OF CAMPERS IN THE WATERLOO RECREATION AREA OF MICHIGAN. 2.16.
FISHERMEN....................THE INFLUENCE OF SPECIAL REGULATIONS ON THE FISH AND FISHERMEN OF THE POUDRE RIVER. 1.11.
HUNTERS......................SPY-BLIND STUDY TO LEARN THE ACCURACY WITH WHICH HUNTERS REPORT INFORMATION THROUGH MAIL SURVEYS. 4.3.
PHYSICAL.........................RECREATIONAL USE OF WILDERNESS AREAS AND REQUIREMENTS IN RELATION TO OTHER FOREST USES. 2.42.
PREFERENCE.......................AN ECONOMIC ANALYSIS OF THE DEMAND FOR LAND AND WATER-BASED OUTDOOR RECREATION IN TEXAS. 3.32.
ANALYSIS OF FACTORS INFLUENCING THE DEMAND FOR RECREATIONAL FACILITIES IN NORTHERN WISCONSIN. 2.50.
ATTITUDES AND GOALS OF AREA RESIDENTS AND ECONOMY OF PROJECTED PLANS FOR RECREATION DEVELOPMENT. 3.30.
CHANGING LEISURE CONCEPTS. 2.18.
EFFECT OF MEMBERSHIP IN PRIVATE RECREATION CLUBS AND MEMBERSHIP USE OF PUBLIC RECREATION LANDS. 2.19.
FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES IN MICHIGAN. 2.21.
IMPLICATIONS OF WILDERNESS VALUES IN THE NATIONAL PARK SYSTEM. 1.41.
PLANS AND EXPECTATIONS FOR OLD AGE. 2.10.

RECREATIONAL TRAVEL STUDY OF VISITORS TO ONTARIO PROVINCIAL PARKS. 4.11.
SOCIAL PATTERN OF RECREATIONAL ACTIVITY OF RHODE ISLAND AND POTENTIAL USE OF RURAL RECREATION. 2.45.
THE DEMAND FOR OUTDOOR RECREATION IN TENNESSEE. 2.46.
THE 1965 NATIONAL SURVEY OF RECREATION PARTICIPANTS. 2.3.
BOATERS......................RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
CAMPERS......................COMPARISON OF PUBLIC AND PRIVATE CAMPGROUND IN OTTAWA NATIONAL FOREST IN MICHIGAN. 1.33.
DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
FACTORS CONTRIBUTING TO MORE EFFICIENT RECREATION PLANNING FOR MICHIGAN STATE FOREST CAMPGROUNDS. 1.42.
FACTORS INFLUENCING CAMPGROUND AND CAMPSITE SELECTION. 2.17.
MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE GREAT LAKES. 3.19.
SPACIAL RELATIONS AS A GUIDE TO PREDICTING CAMPGROUND USE IN NORTHERN UTAH. 2.48.
FISHERMEN....................MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
ANALYSIS OF THE CHARACTERISTICS AND DISTRIBUTION OF THE OHIO FISHERMAN POPULATION. 2.38.
FOREST RECREATIONISTS.......ANALYSIS OF FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES. 2.20.
SOME ECOLOGICAL IMPLICATIONS OF THE MANAGEMENT OF ITASCA STATE PARK TO MEET RECREATIONAL OBJECTIVES. 2.24.
HUNTERS......................EFFECTS OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.10.
EVALUATION OF PUBLIC USE OF STATE GAME AREAS IN SOUTHERN MICHIGAN. 2.23.
MAIL OR INTERVIEW SURVEYS TO DETERMINE HUNTER ATTITUDES IN MICHIGAN. 2.22.
MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
DETERMINATION OF DEER HUNTING PRESSURE IN MASSACHUSETTS. 2.14.
STUDY OF THE HUNTING HABITS AND PREFERENCES OF ALABAMA DEER HUNTERS. 2.1.
NON-HUNTERS..................EFFECTS OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.10.
PICNICKERS...................MANAGEMENT AND DEVELOPMENT OF FOREST RECREATION RESOURCES IN THE SOUTHEAST. 2.35.
RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
RURAL RECREATIONISTS........THE DEMAND STRUCTURE FOR RURAL RECREATION IN PENNSYLVANIA. 2.44.

WILDERNESS RECREATIONISTS...A STUDY OF STANDARDS AND MANAGEMENT OF WILDERNESS LANDS IN MONTANA. 1.46.
PSYCHOLOGICAL................RECREATIONAL USE OF WILDERNESS AREAS AND REQUIREMENTS IN RELATION TO OTHER FOREST USES. 2.42.

REACTION TO REGULATIONS
CAMPERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.29.
FISHERMEN....................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12.
THE INFLUENCE OF SPECIAL REGULATIONS ON THE FISH AND FISHERMEN OF THE POUDRE RIVER. 1.11.
HUNTERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12.
SPORTSMEN....................TO MEASURE AND EVALUATE STATEWIDE AND SECTIONAL SPORTSMAN OPINION IN FLORIDA. 2.7.

REGULATIONS
CAMPERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.34.
RESIDENCE....................EFFECT OF STATE FORESTS AND PARKS ON PUBLIC RECREATIONAL USE OF PRIVATE FORESTS IN LOUISIANA. 2.11.
FEDERAL GRANTS-IN-AID UNDER LAND-WATER CONSERVATION FUND AND SURVEY OF RECREATION EXPENDITURES. 3.6.
HUNTERS......................TO DETERMINE THE COUNTY OF RESIDENCE OF THE HUNTERS CHECKED ON THE MANAGEMENT AREAS IN FLORIDA. 2.8.

SATISFACTION
CAMPERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.29, 2.34.
FISHERMEN....................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12, 2.13.
PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
HUNTERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED RECREATIONAL ACTIVITIES IN THE NORTHEAST. 2.12, 2.13.
DETERMINATION OF DEER HUNTING PRESSURE IN MASSACHUSETTS. 2.14.
WATER RECREATIONISTS........DEMAND FOR WATER BASED RECREATIONAL ACTIVITIES IN NEVADA. 2.27.
SOCIO-ECONOMIC...............DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED IN OKLAHOMA. 2.40, 4.10.
DEMAND OF THE METROPOLITAN POPULATION IN MISSOURI FOR OUTDOOR RECREATION FACILITIES IN RURAL AREAS. 2.25.
OUTDOOR RECREATION FACILITY DEMAND IN THE PHILADELPHIA - BALTIMORE - WASHINGTON METROPOLITAN AREA. 2.5.
PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.
PRESENT AND FUTURE DEMAND CALCULATION FOR OUTDOOR RECREATION IN THE STATE OF KANSAS. 2.26.

(CONTINUED)

PROJECTING RECREATION USE WITHIN AN HOUR AND A HALF DRIVE OF A MAIN RIVER COURSE. 2.4.
RECREATIONAL USE OF WILDERNESS AREAS AND REQUIREMENTS IN RELATION TO OTHER FOREST USES. 2.42.
STUDY GROUP IN OUTDOOR RECREATION USE DISTRIBUTION, PREFERENCE AND INTERCHANGEABILITY. 4.8.
THE 1965 NATIONAL SURVEY OF RECREATION PARTICIPANTS. 2.3.
  CAMPERS......................FACTORS INFLUENCING CAMPGROUND AND CAMPSITE SELECTION. 2.17.
FACTORS INFLUENCING LENGTH OF STAY OF CAMPERS IN THE WATERLOO RECREATION AREA OF MICHIGAN. 2.16.
PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE GREAT LAKES. 3.19.
  FISHERMEN....................ANALYSIS OF THE CHARACTERISTICS AND DISTRIBUTION OF THE OHIO FISHERMAN POPULATION. 2.38.
CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
  HUNTERS......................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
THE SOCIO-ECONOMICS OF RECREATIONAL USE OF THE CACHE ELK HERD IN UTAH. 3.34.
  SIGHTSEERS...................THE SOCIO-ECONOMICS OF RECREATIONAL USE OF THE CACHE ELK HERD IN UTAH. 3.34.
SUCCESS
  CAMPERS......................NATURE AND DETERMINANTS OF A SUCCESSFUL THERAPEUTIC CAMP EXPERIENCE IN A RESIDENTIAL TREATMENT. 2.43.
  FISHERMEN....................ANALYSIS OF THE CHARACTERISTICS AND DISTRIBUTION OF THE OHIO FISHERMAN POPULATION. 2.38.
CONNECTICUT RIVER HARVEST AND POPULATION STUDY BY CREEL CENSUS AND ANGLER COUNTS. 1.31.
CREEL CENSUS AND ECONOMIC SURVEY OF CATCH IN DALE HOLLOW TAILWATER, TENNESSEE. 2.47.
CREEL CENSUS AND USAGE STUDIES ON UTE, LAKE VAN, AND CHICOSA LAKE IN NEW MEXICO. 2.32.
EVALUATION OF UTILIZATION OF OKLAHOMA WILDLIFE CONSERVATION LAKES FOR FISHING AND RECREATION. 2.39.
LEASED PUBLIC HUNTING AREA UTILIZATION BY PERMIT HOLDERS. 2.36.
SURVEY OF EFFORT AND SUCCESS BY OREGON ANGLERS. 2.41.
  HUNTERS......................EVALUATION OF WILDLIFE UTILIZATION AND HUNTER SUCCESS USING COLLIERS MILLS TRACT IN NEW JERSEY. 2.30.
LEASED PUBLIC HUNTING AREA UTILIZATION BY PERMIT HOLDERS. 2.36.
STUDY OF THE HUNTING HABITS AND PREFERENCES OF ALABAMA DEER HUNTERS. 2.1.
TRAVEL.........................DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED IN OKLAHOMA. 4.10.
RECREATIONAL TRAVEL STUDY OF VISITORS TO ONTARIO PROVINCIAL PARKS. 4.11.
  CAMPERS......................FACTORS INFLUENCING CAMPGROUND AND CAMPSITE SELECTION. 2.17.
SPACIAL RELATIONS AS A GUIDE TO PREDICTING CAMPGROUND USE IN NORTHERN UTAH. 2.48.
  USE PATTERNS.................RECREATION USE BY SAMPLE COUNTS AND CONTINUOUS RECORDS WITHIN A UTAH RECREATION COMPLEX. 4.14.

USER DEMAND
  BOATING......................RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
  CAMPING......................DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
FACTORS CONTRIBUTING TO MORE EFFICIENT RECREATION PLANNING FOR MICHIGAN STATE FOREST CAMPGROUNDS. 1.42.
INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
SOCIAL AND ECONOMIC ASPECTS OF FOREST RECREATION IN THE GREAT LAKES. 3.19.
SPACIAL RELATIONS AS A GUIDE TO PREDICTING CAMPGROUND USE IN NORTHERN UTAH. 2.48.
THE ECONOMICS OF OUTDOOR RECREATION ENTERPRISES. 3.20.
  FARM RECREATION..............DEMAND ANALYSIS OF SELECTED RECREATIONAL FACILITIES ON NO. CAROLINA FARMS. 3.22.
ECONOMIC APPRAISAL OF OUTDOOR RECREATIONAL ENTERPRISES ON FARM LANDS IN SOUTHEASTERN OHIO. 3.25.
  FISHING......................CONNECTICUT RIVER HARVEST AND POPULATION STUDY BY CREEL CENSUS AND ANGLER COUNTS. 1.31.
CREEL CENSUS AND USAGE STUDIES ON UTE, LAKE VAN, AND CHICOSA LAKE IN NEW MEXICO. 2.32.
ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION IN SMALL WATERSHEDS OF PENNSYLVANIA. 3.29.
EVALUATION OF HUNTING AND FISHING DEMANDS IN NEW HAMPSHIRE BY A MAIL QUESTIONNAIRE SURVEY. 2.28.
EVALUATION OF UTILIZATION OF OKLAHOMA WILDLIFE CONSERVATION LAKES FOR FISHING AND RECREATION. 2.39.
INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
PROPOSED COLORADO RIVER WATER TRANSFER TO CENTRAL ARIZONA IN RELATION TO RECREATION. 1.3.
RECREATIONAL USE, FISHING PRESSURE AND ANGLER SUCCESS AT CONCHAS LAKE, NEW MEXICO. 2.31.
RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
SURVEY OF EFFORT AND SUCCESS BY OREGON ANGLERS. 2.41.
WHEELER DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NEVADA. 1.47.
  FOREST RECREATION............ANALYSIS OF FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES. 2.20.

FACTORS INFLUENCING ATTENDANCE AT FOREST RECREATION SITES IN MICHIGAN, 2.21.
RECREATIONAL USE OF INDUSTRIAL FOREST LANDS IN CERTAIN COUNTIES OF MICHIGAN UPPER PENINSULA. 1.34.

HUNTING........................ECONOMIC ANALYSIS OF HUNTING, FISHING AND OTHER RECREATION IN SMALL WATERSHEDS OF PENNSYLVANIA. 3.29.
EVALUATION OF HUNTING AND FISHING DEMANDS IN NEW HAMPSHIRE BY A MAIL QUESTIONNAIRE SURVEY. 2.28.
EVALUATION OF WILDLIFE UTILIZATION AND HUNTER SUCCESS USING COLLIERS MILLS TRACT IN NEW JERSEY. 2.30.
INTEGRATION OF FOREST RECREATION WITH OTHER USES AND RECREATION ASPECTS ASSOCIATED WITH WILDLIFE. 1.13.
MAIL OR INTERVIEW SURVEYS TO DETERMINE HUNTER ATTITUDES IN MICHIGAN. 2.22.
PROPOSED COLORADO RIVER WATER TRANSFER TO CENTRAL ARIZONA IN RELATION TO RECREATION. 1.3.
TELEPHONE SURVEY OF GAME HARVEST AND HUNTING PRESSURE IN OHIO. 4.9.
UTILIZATION OF WILDLIFE MANAGEMENT AREAS IN MASSACHUSETTS. 2.15.

NON-HUNTERS...................EVALUATION OF PUBLIC USE OF STATE GAME AREAS IN SOUTHERN MICHIGAN. 2.23.

PICNICKING....................DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
RECREATIONAL USE, FISHING PRESSURE AND ANGLER SUCCESS AT CONCHAS LAKE, NEW MEXICO. 2.31.
RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.

PRIVATE RECREATION............INCOME-PRODUCING OUTDOOR RECREATION ON PRIVATE LANDS. 3.35.

PUBLIC RECREATION.............COMPARISON OF PUBLIC AND PRIVATE CAMPGROUND IN OTTAWA NATIONAL FOREST IN MICHIGAN. 1.33.
EFFECT OF MEMBERSHIP IN PRIVATE RECREATION CLUBS AND MEMBERSHIP USE OF PUBLIC RECREATION LANDS. 2.19.

RECREATION....................ANALYSIS OF FACTORS INFLUENCING THE DEMAND FOR RECREATIONAL FACILITIES IN NORTHERN WISCONSIN. 2.50.
DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED IN OKLAHOMA. 2.40.
OUTDOOR RECREATION FACILITY DEMAND IN THE PHILADELPHIA - BALTIMORE - WASHINGTON METROPOLITAN AREA. 2.5.
PRESENT AND FUTURE DEMAND CALCULATION FOR OUTDOOR RECREATION IN THE STATE OF KANSAS. 2.26.
RECREATION USE BY SAMPLE COUNTS AND CONTINUOUS RECORDS WITHIN A UTAH RECREATION COMPLEX. 4.14.
THE DEMAND FOR OUTDOOR RECREATION IN TENNESSEE. 2.46.

RURAL RECREATION..............SOCIAL PATTERN OF RECREATIONAL ACTIVITY OF RHODE ISLAND AND POTENTIAL USE OF RURAL RECREATION. 2.45.
THE DEMAND STRUCTURE FOR RURAL RECREATION IN PENNSYLVANIA. 2.44.
THE ECONOMICS OF OUTDOOR RECREATION AS A USE OF RURAL LANDS. 3.10.

WATER RECREATION..............AN ECONOMIC ANALYSIS OF THE DEMAND FOR LAND AND WATER-BASED OUTDOOR RECREATION IN TEXAS. 3.32.
COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
DEMAND FOR WATER BASED RECREATIONAL ACTIVITIES IN NEVADA. 2.27.
EVALUATION OF UTILIZATION OF OKLAHOMA WILDLIFE CONSERVATION LAKES FOR FISHING AND RECREATION. 2.39.
PROJECTING RECREATION USE WITHIN AN HOUR AND A HALF DRIVE OF A MAIN RIVER COURSE. 2.4.
RECREATIONAL USE, FISHING PRESSURE AND ANGLER SUCCESS AT CONCHAS LAKE, NEW MEXICO. 2.31.

WATERSHEDS....................DEMAND FOR RECREATION IN THE WILDHORSE CREEK WATERSHED IN OKLAHOMA. 4.10.

WILDERNESS RECREATION.........ECONOMIC ANALYSIS OF MULTIPLE USES OF WILDERNESS AREAS. 3.4.
RECREATIONAL USE OF WILDERNESS AREAS AND REQUIREMENTS IN RELATION TO OTHER FOREST USES. 2.42.
WILDLAND RECREATIONAL MANAGEMENT IN PENNSYLVANIA QUEHANNA WILDERNESS AREA. 1.62.

UTAH..........................CHANGES IN CAMPGROUND VEGETATION AND SOILS AS RELATED TO FERTILIZER, WATER AND VISITOR USE. 1.74.
FOREST ECOSYSTEM MANAGEMENT AND PROTECTION IN THE NORTHERN ROCKY MOUNTAIN AND INTERMOUNTAIN REGIONS. 1.76.
IMPACT OF RECREATIONISTS ON VEGETATION AND SOILS IN SELECTED SITES OF UTAH. 1.73.
PLANNING, DEVELOPMENT, MANAGEMENT AND REHABILITATION IN INTERMOUNTAIN AND NORTHERN REGIONS. 1.75.
RECREATION USE BY SAMPLE COUNTS AND CONTINUOUS RECORDS WITHIN A UTAH RECREATION COMPLEX. 4.14.
RECREATIONAL DEVELOPMENT IN BEAR LAKE AREA IN UTAH. 3.33.
SPACIAL RELATIONS AS A GUIDE TO PREDICTING CAMPGROUND USE IN NORTHERN UTAH. 2.48.
TECHNIQUES FOR PLANNING, DEVELOPMENT AND MANAGEMENT OF WESTERN INTERMOUNTAIN WILD LANDS. 4.13.

VEGETATION
  AQUATIC WEEDS...............INVESTIGATION OF AQUATIC WEED PROBLEMS AND MEANS OF CONTROL WITH EMPHASIS ON BRAZILIAN WATERWEED. 1.60.
  CAMPGROUNDS.................CHANGES IN CAMPGROUND VEGETATION AND SOILS AS RELATED TO FERTILIZER, WATER AND VISITOR USE. 1.74.
  IMPACT OF RECREATIONISTS ON VEGETATION AND SOILS IN SELECTED SITES OF UTAH. 1.73.
  DISEASE PREVENTION..........CAUSE AND PREVENTION OF DAMAGE BY DISEASE TO FOREST RECREATION AREAS. 1.61.
  FOREST ECOSYSTEM MANAGEMENT AND PROTECTION IN THE NORTHERN ROCKY MOUNTAIN AND INTERMOUNTAIN REGIONS. 1.76.
  FORAGES.....................MANAGEMENT OF MOUNTAIN RANGELANDS WITH EMPHASIS ON ALPINE AND SUBALPINE TYPES IN WYOMING. 1.80.

VEGETATION——

- FOREST AREAS..................FOREST FIRE PREVENTION THROUGH PUBLIC INTEREST IN GAME AND MANAGEMENT IN SOUTHERN WEST VIRGINIA. 1.79.
  - HORTICULTURAL METHODS FOR PLANTING, MANAGING AND ENHANCING VEGETATION ON FOREST RECREATION SITES. 1.5.
  - PLANNING, IMPROVEMENT, PROTECTION AND MANAGEMENT OF FOREST RECREATION IN THE NORTHEAST. 1.57.
  - PLANNING, IMPROVING, PROTECTING AND MANAGING FOREST RECREATION IN THE NORTHEAST. 1.63.
  - REDUCTION IN DAMAGES TO FORESTS BY IMPROVING MINING AND REHABILITATION PROCEDURES. 1.27.
  - SOME ECOLOGICAL IMPLICATIONS OF THE MANAGEMENT OF ITASCA STATE PARK TO MEET RECREATIONAL OBJECTIVES. 2.24.
  - THE CARRYING CAPACITY OF DIFFERENT FOREST SITES FOR DIFFERENT RECREATIONAL USES IN MISSOURI. 1.43.
- HORTICULTURAL PLANTS..........HORTICULTURAL METHODS FOR PLANTING, MANAGING AND ENHANCING VEGETATION ON FOREST RECREATION SITES. 1.5.
- PICNIC GROUNDS................DEVELOPMENT OF GUIDES FOR OBTAINING OPTIMUM USE OF FOREST RECREATION AREAS IN THE PACIFIC SOUTHWEST. 3.5.
- TREES.........................TREE PLANTINGS TO ENHANCE RECREATION POTENTIAL OF SITES ON MISSOURI RIVER RESERVOIRS IN SO. DAKOTA. 1.68.

VERMONT.........................ECONOMICS OF MULTIPLE USE OF FORESTED LAND IN VERMONT. 4.15.
- INCOME-PRODUCING OUTDOOR RECREATION ON PRIVATE LANDS. 3.35.

VIRGINIA........................ECONOMIC EVALUATION OF RECREATION AS AN ALTERNATIVE USE OF RURAL RESOURCES IN VIRGINIA. 3.36.
- EVALUATION OF LAND USE PATTERNS IN EXPANDING METROPOLITAN REGIONS IN VIRGINIA. 1.77.

WASHINGTON......................RECREATIONAL USE OF FOREST LANDS RELATED TO MANAGEMENT OF TIMBER PRODUCTION IN WESTERN WASHINGTON. 1.78.

WATER MANAGEMENT
- ALTERNATIVE USE...............COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
  - DEVELOPMENT OF WATER RECREATION POTENTIAL OF LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.
  - ECONOMIC POTENTIALS FOR WATER RESOURCES DEVELOPMENT IN SOUTH DAKOTA. 3.31.
  - SIMULATION AS A MEANS OF STUDYING RESOURCE ALLOCATIONS. 4.12.
  - THE ECONOMICS AND ADMINISTRATION OF WATER RESOURCES. 3.7.
  - WATER SUPPLY AND DEMAND IN NEW YORK, THE NORTHEAST REGION AND CANADA. 1.51.
- POLLUTION CONTROL.............INVESTIGATION OF AQUATIC WEED PROBLEMS AND MEANS OF CONTROL WITH EMPHASIS ON BRAZILIAN WATERWEED. 1.60.
  - ORGANIZATIONAL ARRANGEMENTS IN URBAN RIVER BASINS TO PROVIDE RECREATION AND POLLUTION CONTROL. 1.39.
- QUALITY.......................DETERMINATION OF SAFE LEVELS OF POLLUTION OF MAYAGUEZ BAY IN PUERTO RICO. 1.64.
  - WATER QUALITY AND PRIMARY PRODUCTION OF SOUTH DAKOTA LAKES. 1.67.

WATER RECREATION................AN ECONOMIC ANALYSIS OF THE DEMAND FOR LAND AND WATER-BASED OUTDOOR RECREATION IN TEXAS. 3.32.
- COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
- CRITERIA FOR EVALUATING THE QUALITY OF WATER BASED RECREATION FACILITIES. 1.58.
- DEMAND FOR WATER BASED RECREATIONAL ACTIVITIES IN NEVADA. 2.27.
- DEVELOPMENT OF WATER RECREATION POTENTIAL OF LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.
- ECONOMIC POTENTIALS FOR WATER RESOURCES DEVELOPMENT IN SOUTH DAKOTA. 3.31.
- THE EFFECT OF RECREATIONAL DEVELOPMENT ON LAKE OF EGYPT UPON THE LAND AND WATER. 1.22.
- WATER SUPPLY AND DEMAND IN NEW YORK, THE NORTHEAST REGION AND CANADA. 1.51.

WATER RESOURCES
- ACCESS........................DEVELOPMENT OF WATER RECREATION POTENTIAL OF LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.
  - OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
  - PUBLIC ACCESS SURVEY OF PUBLIC WATERS IN REGION 2-A OF TEXAS. 1.70.
  - WATER RESOURCES DEVELOPMENT IN RELATION TO LAND MANAGEMENT FOR WILDLIFE PRESERVATION. 1.12.
- BODIES OF WATER
  - ARTIFICIAL PONDS............SURVEY AND EVALUATION OF SMALL ARTIFICIAL PONDS AND FISH MANAGEMENT. 1.29.
  - LAKES.......................COMPETITIVE RECREATIONAL USES OF LAKES SPIRIT, OKOBOJI, CLEAR, EAGLE, AND LITTLE WALL IN IOWA. 1.25.
    - COOPERATIVE WATER RESOURCES INVENTORY OF ARIZONA. 1.2.
    - DEVELOPMENT OF WATER RECREATION POTENTIAL OF LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.
    - THE EFFECT OF RECREATIONAL DEVELOPMENT ON LAKE OF EGYPT UPON THE LAND AND WATER. 1.22.
    - WATER QUALITY AND PRIMARY PRODUCTION OF SOUTH DAKOTA LAKES. 1.67.
  - PUBLIC LAKES AND STREAMS....OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
    - PUBLIC ACCESS SURVEY OF PUBLIC WATERS IN REGION 2-A OF TEXAS. 1.70.
  - RESERVOIRS..................MULTIPLE PURPOSE WATER RESOURCE INVESTIGATIONS IN NEW YORK. 1.52.
    - RECREATIONAL VALUES OF WATER IN MAJOR NEW MEXICO RESERVOIRS RELATED TO DEMAND SCHEDULES. 2.33.
  - RIVERS......................CONNECTICUT RIVER HARVEST AND POPULATION STUDY BY CREEL CENSUS AND ANGLER COUNTS. 1.31.
    - DEVELOPMENT OF WATER RECREATION POTENTIAL OF LAKES AND RIVERS OF BRISTOL BAY REGION OF ALASKA. 1.1.

LIFE HISTORY OF ARTIFICIALLY PRODUCED BROODS OF FLOODWATER MOSQUITOES IN THE TENNESSEE VALLEY. 1.69.
MOSQUITO CONTROL PROGRAM IN ST. JOHNS, BREVARD AND INDIAN RIVER COUNTIES OF FLORIDA. 1.21.
COMPETITIVE DEMAND............ECONOMIC PROBLEMS IN THE USE, ALLOCATION, REGULATION, AND PRICING OF WATER IN MINNESOTA. 3.18.
MULTIPLE PURPOSE WATER RESOURCE INVESTIGATIONS IN NEW YORK. 1.52.
USE AND DISTRIBUTION OF FRESH WATER RESOURCES IN RHODE ISLAND. 1.65.
COSTS.........................ECONOMIC PROBLEMS IN THE USE, ALLOCATION, REGULATION, AND PRICING OF WATER IN MINNESOTA. 3.18.
DEVELOPMENT...................ECONOMIC POTENTIALS FOR WATER RESOURCES DEVELOPMENT IN SOUTH DAKOTA. 3.31.
ECONOMIC PROBLEMS IN THE USE, ALLOCATION, REGULATION, AND PRICING OF WATER IN MINNESOTA. 3.18.
ECONOMICS OF AGRICULTURAL LAND AND WATER USE, CONSERVATION AND DEVELOPMENT IN OKLAHOMA WATERSHEDS. 3.26.
EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.8, 1.9.
EFFECTS OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.10.
USE AND DISTRIBUTION OF FRESH WATER RESOURCES IN RHODE ISLAND. 1.65.
WATER RESOURCES DEVELOPMENT IN RELATION TO LAND MANAGEMENT FOR WILDLIFE PRESERVATION. 1.12.
WATER SUPPLY AND DEMAND IN NEW YORK, THE NORTHEAST REGION AND CANADA. 1.51.
WILLAMETTE BASIN DEVELOPMENT STUDY IN OREGON. 3.27.
FLOODWATER....................ECONOMICS OF AGRICULTURAL LAND AND WATER USE, CONSERVATION AND DEVELOPMENT IN OKLAHOMA WATERSHEDS. 3.26.
LEGAL.........................ECONOMIC PROBLEMS IN THE USE, ALLOCATION, REGULATION, AND PRICING OF WATER IN MINNESOTA. 3.18.
OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
POLLUTION CONTROL.............DETERMINATION OF SAFE LEVELS OF POLLUTION OF MAYAGUEZ BAY IN PUERTO RICO. 1.64.
INVESTIGATION OF AQUATIC WEED PROBLEMS AND MEANS OF CONTROL WITH EMPHASIS ON BRAZILIAN WATERWEED. 1.60.
ORGANIZATIONAL ARRANGEMENTS IN URBAN RIVER BASINS TO PROVIDE RECREATION AND POLLUTION CONTROL. 1.39.
OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
WHEELER DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NEVADA. 1.47.
QUALITY.......................REDUCTION IN DAMAGES TO FORESTS BY IMPROVING MINING AND REHABILITATION PROCEDURES. 1.27.
RIVER BASINS..................ORGANIZATIONAL ARRANGEMENTS IN URBAN RIVER BASINS TO PROVIDE RECREATION AND POLLUTION CONTROL. 1.39.
PROJECTING RECREATION USE WITHIN AN HOUR AND A HALF DRIVE OF A MAIN RIVER COURSE. 2.4.
SIMULATION AS A MEANS OF STUDYING RESOURCE ALLOCATIONS. 4.12.
WILLAMETTE BASIN DEVELOPMENT STUDY IN OREGON. 3.27.
WATERSHEDS....................COSTS AND BENEFITS OF WATERSHED MANAGEMENT IN SOUTHWEST FORESTS. 3.2.
IMPACT OF LAND USE ON WATER QUALITY WITHIN A FORESTED MOUNTAIN WATERSHED IN COLORADO. 3.8.

WATER TRANSFER................IMPACT OF WATER EXPORT ON AREA OF ORIGIN, A STUDY OF THE OWENS AND MONO BASINS OF CALIFORNIA. 3.3.
PROPOSED COLORADO RIVER WATER TRANSFER TO CENTRAL ARIZONA IN RELATION TO RECREATION. 1.3.

WEST VIRGINIA.................CONSUMER ANALYSIS FOR SPECIFIC FOREST-ORIENTED ACTIVITIES IN THE NORTHEAST. 2.49.
FOREST FIRE PREVENTION THROUGH PUBLIC INTEREST IN GAME AND MANAGEMENT IN SOUTHERN WEST VIRGINIA. 1.79.

WILDERNESS RECREATION.........A STUDY OF STANDARDS AND MANAGEMENT OF WILDERNESS LANDS IN MONTANA. 1.46.
WILDLAND RECREATIONAL MANAGEMENT IN PENNSYLVANIA QUEHANNA WILDERNESS AREA. 1.62.

WILDLIFE MANAGEMENT
FISH..........................OWYHEE DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NORTHEAST NEVADA. 1.48.
SURVEY AND EVALUATION OF SMALL ARTIFICIAL PONDS AND FISH MANAGEMENT. 1.29.
THE INFLUENCE OF SPECIAL REGULATIONS ON THE FISH AND FISHERMEN OF THE POUDRE RIVER. 1.11.
WHEELER DISTRICT FISHERIES MANAGEMENT INVESTIGATIONS IN NEVADA. 1.47.
PHEASANT......................UPLAND GAME INVESTIGATIONS OF LICENSED PHEASANT CLUB MANAGEMENT PROGRAM. 1.6.
REGULATIONS...................THE INFLUENCE OF SPECIAL REGULATIONS ON THE FISH AND FISHERMEN OF THE POUDRE RIVER. 1.11.
WATERFOWL.....................MOSQUITO CONTROL PROGRAM IN ST. JOHNS, BREVARD AND INDIAN RIVER COUNTIES OF FLORIDA. 1.21.

WILDLIFE RESOURCES
DEER..........................STUDY OF METHODS AND PROCEDURES IN GAME HARVEST SURVEYS IN MICHIGAN. 4.7.
GAME BIRDS....................EFFECTS OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.10.
GROUSE........................WATER RESOURCES DEVELOPMENT IN RELATION TO LAND MANAGEMENT FOR WILDLIFE PRESERVATION. 1.12.
PHEASANTS.....................EFFECT OF COLORADO WATER RESOURCES DEVELOPMENT UPON WILDLIFE RESOURCES AND HUNTER ACTIVITY. 1.8, 1.9.
UTILIZATION OF WILDLIFE MANAGEMENT AREAS IN MASSACHUSETTS. 2.15.
RABBITS.......................STUDY OF METHODS AND PROCEDURES IN GAME HARVEST SURVEYS IN MICHIGAN, 4.7.

WISCONSIN.....................ANALYSIS OF FACTORS INFLUENCING THE DEMAND FOR RECREATIONAL FACILITIES IN NORTHERN WISCONSIN. 2.50.
BASIC LAND ECONOMIC DATA FOR SELECTED AREAS OF NORTHERN WISCONSIN. 3.37.
ORGANIZATIONAL ARRANGEMENTS IN URBAN RIVER BASINS TO PROVIDE RECREATION AND POLLUTION CONTROL. 1.39.

WYOMING.......................MANAGEMENT OF MOUNTAIN RANGELANDS WITH EMPHASIS ON ALPINE AND SUBALPINE TYPES IN WYOMING. 1.80.

★U. S. GOVERNMENT PRINTING OFFICE : 1967 O - 242-356